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JULY, 1940

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NEW BY-PASS UNIT STOPS WASTE ON MULTI-STOP TRUCKS

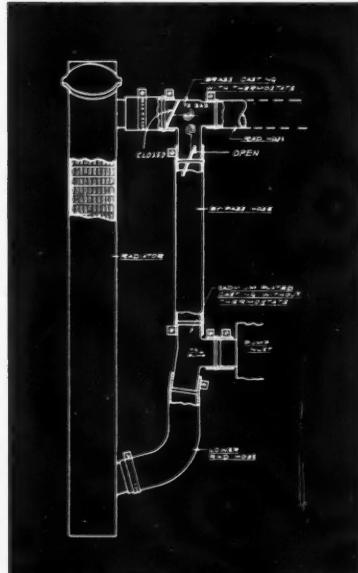
Crank-case wastes are sharply reduced when uniform temperatures are maintained low down on the block where walls are not fully jacketed and heat must be conducted downward through the metal itself.

These wastes of gas, oil, anti-freeze and power are especially bad when the driving period between stops fails to equal the required warm-up period. Any fleet operator delivering on stop-and-go house-to-house routes will recognize this condition—and want the savings of Dole By-Pass Units, brought about by quick, even distribution of heat through the motor during all seasons of the year.

If the cost of crank-case dilution, sludge and scored cylinder walls equals only half a cent per stop per truck the saving would quickly equip the entire fleet with the new Dole Unit.

Ask Your Jobber's Man About This New Unit

It consists of special Dole Thermostats with all fittings and hose for the actual by-passing of the radiator until water in the cylinder walls reaches the required temperature. Get the story.



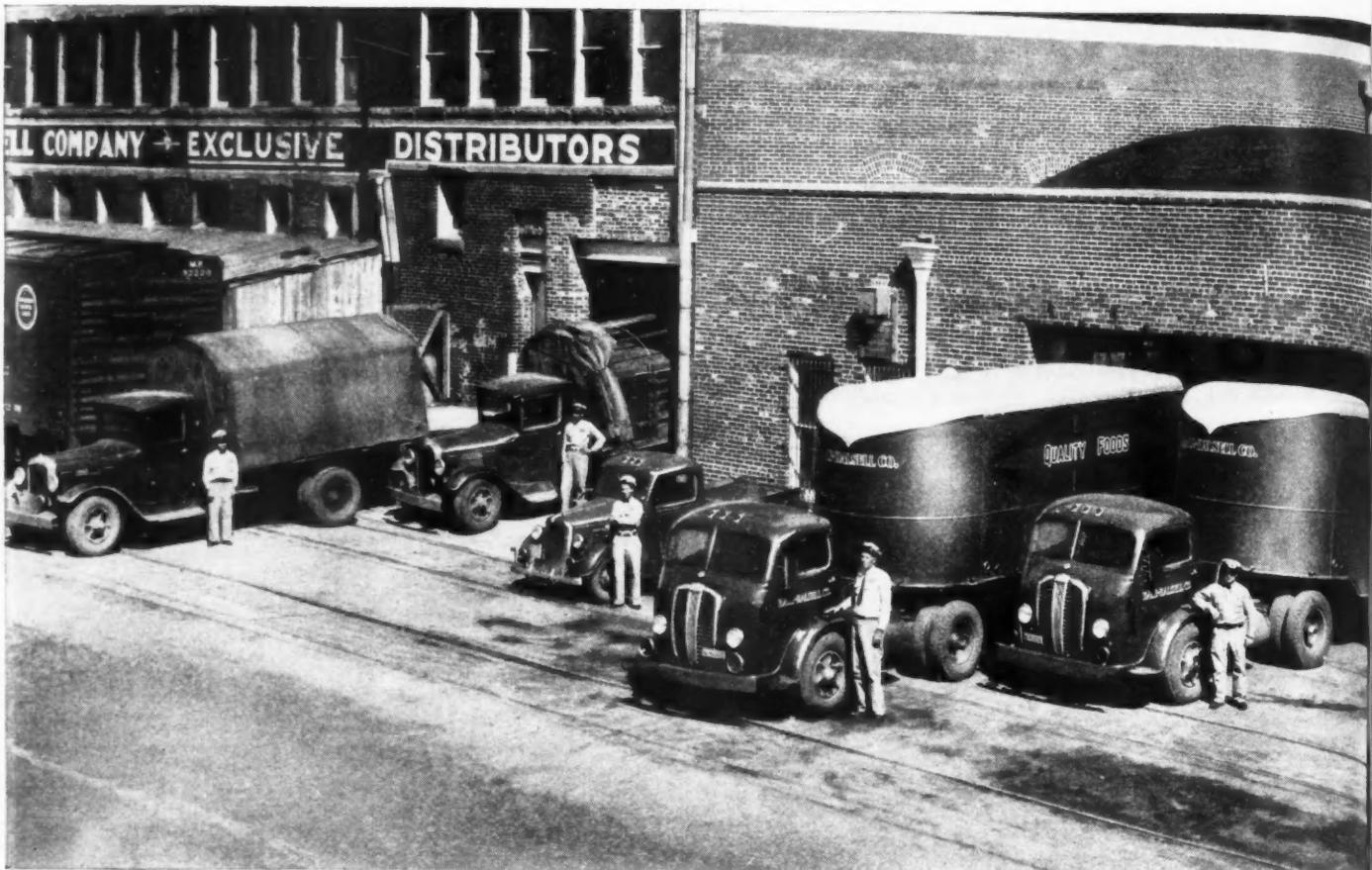
Quick, free circulation by pump through every part of the motor block in a closed circuit independent of the radiator.

DOLE

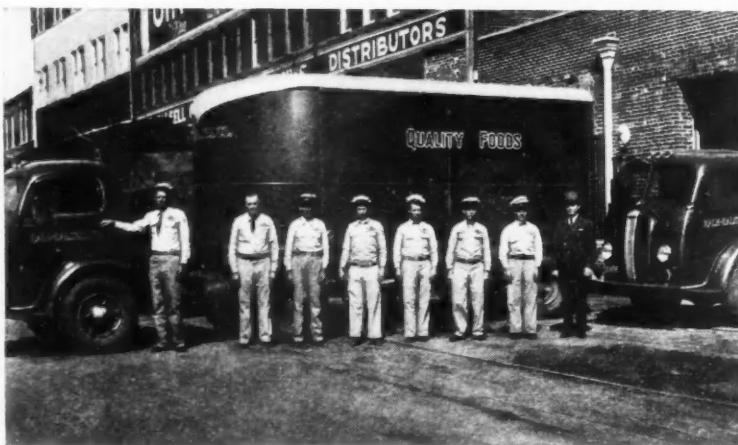
THERMOSTATS

THE DOLE VALVE COMPANY
1901-1941 Carroll Avenue, Chicago, Illinois
Representatives in Principal Cities

Food Trucks



PART OF THE 40-UNIT FLEET of the Hale-Halsell Co., McAlester, Okla., which tested various brands of lubricants for an entire year. Final choice . . . **TEXACO** Fuel and Lubricants 100%.



TYPICAL HEAVY HAULING truck-trailer combinations with Hale-Halsell's uniformed drivers who are enthusiastic about Texaco Truck Fuels and Lubricants.

Texaco Dealers invite you to tune in The Texaco Star Theatre—starring Kenny Baker and Frances Langford—Every Wednesday Night—Columbia Network—9:00 EDT, 8:00 E.S.T., 8:00 C.D.T., 7:00 C.S.T., 6:00 M.S.T., 5:00 P.S.T.



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When writing to advertisers please mention *Commercial Car Journal*

COMMERCIAL CAR JOURNAL
JULY, 1946

COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS



Goodrich officials (left to right) David M. Goodrich, W. L. Semon and John L. Collyer demonstrate Ameripol, the company's new all-American "rubber" at New York preview. In background, the first passenger car tire made entirely from American materials.

EARS TO THE GROUND

SAE Scribble

This department's operative who took notes at the SAE Summer Meeting found in his pocket when he returned a scrap of paper that said that one speaker stated that he had seen an invention that provided

an automatically variable compression ratio for truck engines so that the engine would be adjusted for economy under all conditions of operation.

Ford Fashion

Now that we have kept you up to date on the Ford Six rumors, we expand the Ford rumor department to include a four-cylinder engine. The man in charge of Ford rumors reports that Ford is now experimenting with a four-cylinder job. We know some fleet operators who hope the engine will produce at least 70 hp.

Design Data

A long-time producer of trucks is now in the process of giving the truck line "the business." When complete the result will be a new line of completely redesigned trucks. Our man on the ground says that the new line will concentrate on trucks of 1½ tons and less.

Oil Oracle

An oil man said publicly at the SAE Summer Meeting that one of the mass producers of vehicles would have a six-cylinder, overhead-valve, racing-type engine for 1941. He did not pause to say what he meant by a racing-type engine.

Sand Script

This department has been threatened with full details on a new type sanding device for sprinkling sand on the road ahead of braking wheels but so far we have been unable to get any factual data.

Model Meaning

An exclusive truck manufacturer has communicated with one of our agents and told him to be ready shortly for a description of a complete new line of trucks. The new models will feature, among other things, a new front-end treatment.

FREE BOOKS

... a special selection made by the editors ... to get your copy, just check the letter on the post card between pages 104 and 105 which corresponds with the item you desire and mail to Commercial Car Journal, Philadelphia.

Refinishing Instructions

A complete resume of automotive finishing has been issued by the finishes division of E. I. duPont de Nemours & Co., in the form of a 30-page booklet, "Instructions for Using duPont Refinishing Materials." Included is a step-by-step outline of various operations ranging from complete refinishing to touch up work. There is also a section on causes and cures of

painting difficulties as well as descriptions of available duPont materials. Check "A" on the post card for your copy.

First Dodge-Diesel Catalog

Dodge-Diesel job-rated, heavy-duty truck catalog is off the press. Done in two colors, the book stresses the research and development which preceded introduction of Dodge-Diesel trucks. Illustrations show the modern manufacturing facilities in the new Dodge truck plant and also features of the Dodge-Diesel engine and chassis. Well recommended. Check "B" on the post card.

Fitzgerald Gaskets

Catalog No. 43, recently issued by The Fitzgerald Mfg. Co., Torrington, Conn., presents just about the last word in "Gasketology". An important new convenience feature is a strict alphabetical listing not only by vehicle make but also by locations on the vehicle making for quick reference in all cases. Cars, trucks, tractors, engines are all in one list—390 pages. Check "C" on the post card for your reference copy.

Eberhard Hardware

Eberhard Mfg. Co.'s new catalog No. 12 runs the complete gamut of truck hardware equipment from simple angle irons to complete pedestal swivel chairs. Ninety-four pages give the complete details of just about all you need to know about hardware. Check "D" on the post card.

Lathe Guide for Shop Men

Condensed "lathe lore," designed to tell the shop man just what a bench lathe can do for him, is the contents of a new 12-page booklet from Atlas Press Co., Kalamazoo. Armature reconditioning, grinding, piston finishing, milling and all-round lathe work are some of the important subjects covered. Check "E" on the post card for a worthwhile booklet.

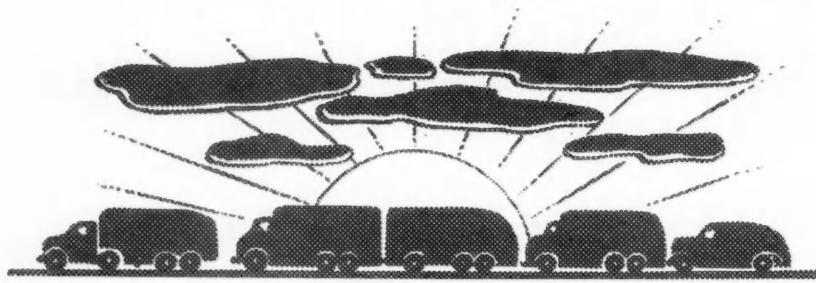
Uniform and Cap Catalog

A handy condensed catalog showing important details of uniform and hat construction and actual samples of available materials has been issued by the Hanover Uniform Co., Baltimore, Md. An inter-

(TURN TO PAGE 86, PLEASE)

AFTER HOURS

Editorial Comments By George T. Hook, Editor



1. National Defense Program—a truck industry opportunity. 2. The I. C. C. and private trucks

1. The program of National Defense which is now being projected contains implications of a momentous character to the many elements that make up the vast highway transportation industry. They are momentous because of the benefits likely to accrue, rather than the sacrifices that might be imposed.

In its present outlines the defense program does not call for blackouts, for rationing of fuel, for commandeering of commercial vehicles, for curtailment of normal services or for many of the other sacrifices which highway transportation in European countries has been compelled to make. A state of war might invoke some such sacrifices, but a campaign of preparedness calls for expansion and for acceleration of effort. Currently the only things we in highway transportation will be asked to sacrifice are some of our leisure and all of our nonchalance.

To procure the benefits we must exert ourselves.

Exertion by truck, parts equipment and accessory manufacturers is to be taken for granted. Once those who head up the armed forces decide to what extent and with what sort of equipment the army is to be mechanized, industry can be counted on to do its part. In its stride the industry can take care of the demand for the thousands of regular commercial vehicles which the armed forces certainly will require. The potential headaches will be in meeting the demands for non-commercial vehicles. But the industry has the doctors to take care of those headaches, with the cooperation of the Federal government.

Truck operators in the for-hire motor freight business will benefit not only from the accelerated tempo of industry, but of business in general. More tons of all kinds of goods will be produced and so more tons will have to be transported.

The benefits of a general improvement in business will ripple on out

to all private truck operations.

But beyond all these so-called business benefits, there are the even more important benefits to be gained from an improvement in the conditions under which motor trucks must operate.

If a National Defense program is to be truly comprehensive and is to be carried out efficiently and economically, the highways must be good enough to carry the weightiest piece of mobile equipment in a mechanized force; they must be freed of politically-placed obstacles to permit efficient and economical transportation, and trucks must be relieved of politically-inspired restrictions.

In short, the time is ripe for the entire industry to seek (1) the elimination of all trade barriers which obstruct highway commerce; (2) an increase of sizes and weights wherever unfair truck restrictions prevail and to procure increases that are in line with recommendations arrived at scientifically; (3) immediate improvement of arterial highways and of bridges wherever they are used as excuses for the imposition of low gross weights.

Unless state barriers are removed; unless uniformity of truck sizes and weights is achieved at a level fulfilling the requirements of an emergency, and unless roads and bridges are improved in line with those requirements, highway transportation, whose importance is paramount in mechanized warfare, cannot function efficiently in a defense program truly national in scope.

If the railroads oppose such a program, and if they are abetted by legislators in those states where immediate changes are imperative, all such opponents may be considered "Fifth Columnists" bent on obstructing the National Defense program.

The industry has a job to do and

Here are the "orders" for this month's quiz. Arrange everything in order and credit yourself with ten points for each correct sequence. A hundred is the "order for the day."

(Correct answers on Page 86)

1. Arrange in the order of their age:
 - a. Paul G. Hoffman of Studebaker.
 - b. Alfred P. Sloan of General Motors.
 - c. Walter P. Chrysler of Chrysler.

2. Arrange in the order of density (weight per unit of volume):
 - a. Water.
 - b. Gasoline.
 - c. Alcohol.

3. Arrange in the order of total road mileage:
 - a. New York.
 - b. Pennsylvania.
 - c. Texas.

CCJ QUIZ



"The Wilsons quit taking milk last month, but it keeps stopping here anyway!"

should begin to do it while public sentiment is favorable.

2. On the theory that a truck is a truck, and that if common and contract carrier trucks are regulated as to safety, the trucks of private carriers should likewise be regulated, the Interstate Commerce Commission voted to place private trucks under its jurisdiction.

On the theory, apparently, that a farm is a farm, the Commission exempted drivers of farm trucks from the 21-year age limit and fixed a limit of 18 years. The farm may be a sharecropper's farm and the sharecropper's son may be as undernourished and diseased as some government agencies claim sharecroppers to be, but in the eyes of the Commission that son of 18 years is an able-bodied boy, who need not pass a medical examination to qualify as a truck driver, and the equal of any non-farm boy of 21 years of age who must pass a medical examination before he may drive a truck.

The Commission seems to be guilty of inconsistency. It seems, also, to be guilty of carelessness, because after arguing about the able-bodied-

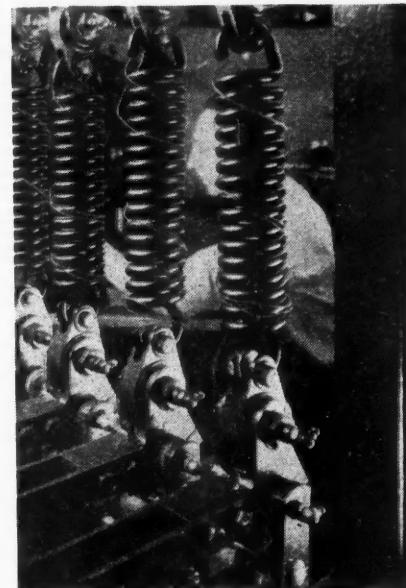
ness of 18-year-old farm boys, it ruled that "individuals between the ages of 18 and 21 years should be permitted to drive and operate farm trucks," and the term "individuals" would seem to include any farm girl, or any male or female city slicker should he or she happen to be working for the farmer.

But above all, the Commission appears to have assumed a responsibility which it is not equipped to fulfill. The dissenting opinion of Commissioner Alldredge not only stresses this fact, but suggests that not enough progress has been made in the regulation of common and contract carrier trucks. Said Commissioner Alldredge:

"I disagree with the conclusions of the report in this proceeding. It is impossible for me to make a rational separation between the existence of any need for better regulation of private carriers of property in the interest of safety and our ability to fulfill such a need. It seems to me that there is no constructive purpose to be accomplished by displacing the jurisdiction of other agencies over this subject-matter, which will be a necessary legal effect of our entering the field, unless we are in position to improve the situation. I do not believe we are in such a position at the present time. It seems to me that it would be better and more in conformity with the objectives which Congress had in mind when it passed the Motor Carrier Act, 1935, to concentrate our efforts toward the promotion of safety on the highways in connection with the operation of motor carriers for hire which have been unconditionally placed under our regulation. When we have made more progress in that field, then I think we might give attention to private carriers."

Which, to paraphrase Radio Comedian Jerry Colonna, is what "we kept telling them down at the office."

4. Arrange in the order of tonnage:
 - a. White model 722.
 - b. Brockway model 125X.
 - c. GMC model AC700.
5. Arrange in time order:
 - a. Principle of four stroke cycle developed.
 - b. First oil well drilled at Titusville, Pa.
 - c. Pneumatic tire patented.
6. Arrange in the order of crude petroleum production:
 - a. United States.
 - b. Rumania.
 - c. Russia.
7. Arrange in the order of their weight:
 - a. 10½ in. battery.
 - b. 32x6 10-ply tire.
 - c. 12-gallon drum of oil.
8. Arrange in the order of annual motor fuel consumption:



Shackle testing machine in the Gulf Oil Corp. testing laboratory. Load is applied by the springs which you see and motion by cams. Thermocouples record any rise in temperature which indicates a lubrication failure. Parts are weighed before and after test to indicate condition of parts and lubricant



An 80-foot telescoping derrick, a 240-in. wheelbase, and 152 hp. engine are features of six-wheel-drive FWD oil servicing unit



Conducting his business inside this Dodge truck, C. M. Harris, Los Angeles accountant, keeps records for 145 diversified clients

- a. California.
- b. New York.
- c. Pennsylvania.

9. Arrange in the order of frequency of fatal accident causes:
 - a. Exceeding speed limit.
 - b. Not having right of way.
 - c. On wrong side of road.
10. Arrange in the order of heat value:
 - a. Gasoline.
 - b. Benzene.
 - c. Kerosene.

FLEETMEN AND FACTORYMEN AT ANNUAL



S.A.E. PROBES FLEET PROBLEMS

By GEORGE T. HOOK

Editor, Commercial Car Journal



A VARIETY of subjects of particular interest to fleetmen received a down-to-earth treatment in the somewhat elevated surroundings of White Sulphur Springs, W. Va., where the Society of Automotive Engineers held its 35th Anniversary Summer Meeting, June 9 to 14.

An enlightening excursion into lubricant additives, oil filters and temperature control was touched off by a brief but meaty paper on piston ring and cylinder wear prepared by Ellis W. Templin, of the Department of Water & Power, City of Los Angeles, Cal.

Mr. Templin contended that mileages procured with initial sets of rings were inadequate. He presented some averages for cars in the light-weight, low-price class furnished him by a number of large fleets. These showed that in the case of one make initial ring mileages ranged from 20,000 to 25,000 miles. In the case of another make the range was 30,000 to 35,000 miles, and in the case of the third make, 20,000 to 30,000 miles.

One fleet with 494 cars in all three

classes showed a total initial ring mileage of 12,653,215, for an average per set of rings of 25,614 miles. Second sets of rings in 346 of these same cars averaged 18,939 miles.

The national overall mileage reported by a piston ring company, according to Mr. Templin, was 25,000 on the first set of rings.

"A reasonable view of the situation," said Mr. Templin, "seems to indicate that the interest of the fleet operator would be well met by an average fleet mileage of 60,000 before the first ring change. Such a mileage would give most fleets an opportunity to run their vehicles until they need a ring change and then trade them in on new vehicles and thereby avoid the expense of ring changes."

Recognizing that rings of themselves are not wholly responsible for

their own wear and that, in fact, rings are usually changed due to cylinder wear, Mr. Templin devoted himself to consideration of what to do about it,

"It goes without saying," said he, "that piston ring manufacturers are doing all in their power to reduce ring wear and still give proper ring performance. It was believed and hoped that the recent adoption of special coatings on piston rings would improve their life. However, the records of one large public utility fleet indicate that when it comes to actual performance based upon a fleet average they are not doing as well as previous constructions. The record shows an average of 24,313 miles against an average for the older type of rings of 25,614 miles."

Experiments and experience are beginning to indicate some directions

SUMMER MEETING DISCUSS

Piston  Ring and Cylinder Wear and What to

 **Do About It Oil Filters Lubricant**

 **Additives Chassis  Lubrication**

 **Appearance Maintenance Preventive**

 **Maintenance Trends in  Fuels**

 **How to Get More Power  Per Unit of Gross**

 **Weight New Ideas on Crankcase **

Oils The Problem of Valve  Deposits

and Some Suggested  Remedies

in which to proceed, according to Mr. Templin. Experiments have proved the fact that low jacket water temperatures cause excessive cylinder wear due primarily to corrosion. This condition has been corrected in several ways: through the use of nitrided and otherwise heat-treated cylinder sleeves and chrome-plated cylinders, and control of temperature at a high enough figure (above 200 deg. F.) to prevent the formation of corrosive acids with the use of "sour" gases for fuel which with ordinary cooling caused enormous wear.

"Since the air cleaner has become well established as a means of reducing wear, the next most tangible means of extending piston ring and cylinder life seems to be the use of the renewable type of crankcase oil filter," Mr. Templin declared. "The continued diligence of engine, piston

and piston ring builders in securing the best combinations to meet the wide range of operating conditions existent in the daily operation of motor vehicles should, in the long run, produce substantial results.

"In addition to these precautions, a concerted effort on the part of vehicle designers should be applied toward maintaining crankcase oils and jacket water at suitable levels of temperature to improve piston ring and cylinder wall life. Temperature control seems to be the most tangible factor for the designer to consider."

In the discussion Dr. U. B. Bray, West Coast oil technician, advanced two lines of approach to solution of the wear problem: 1. By improving metals; 2. By improving lubricants with the use of additives.

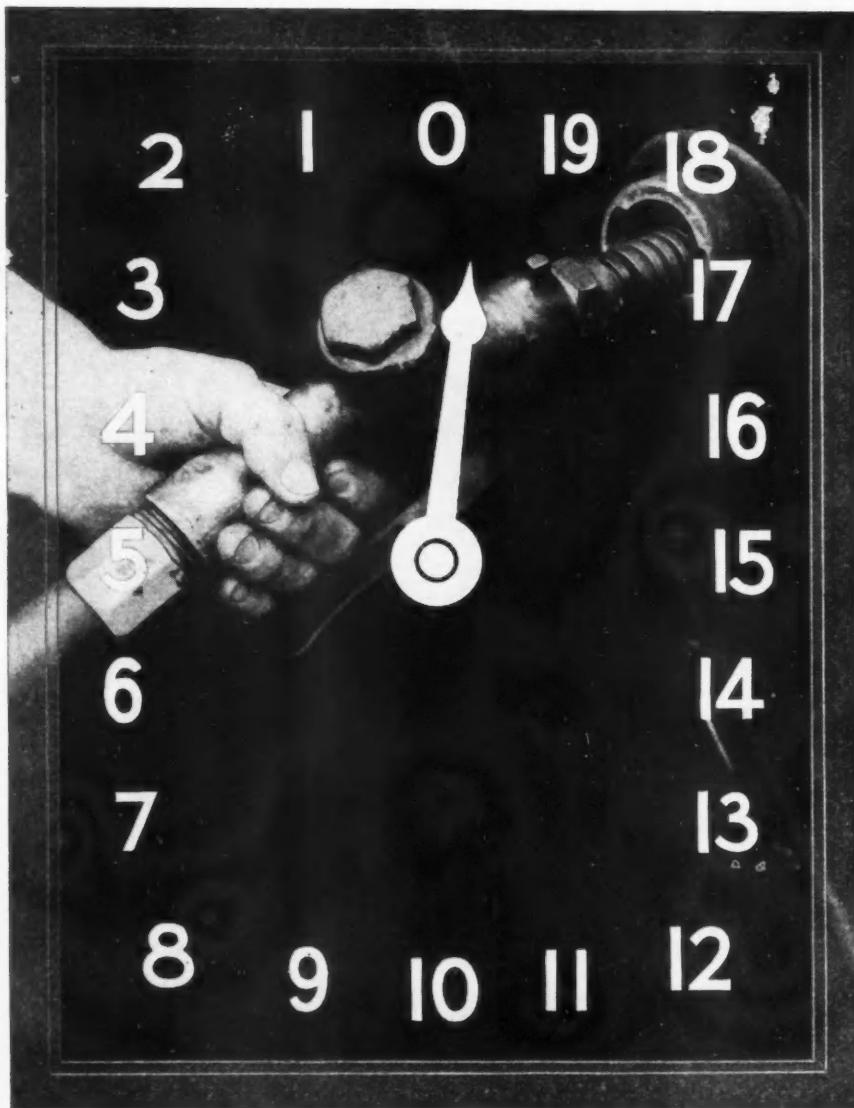
"It is generally recognized," Dr. Bray said, "that harder cylinders of

proper structure and composition give greatly increased ring life and less wall wear. In diesels with hardened alloy steel liners, 80,000 miles on a set of rings in a truck is a common experience even with ordinary lubricants.

"The development of improved lubricants during recent years offers considerable increase in life of piston rings and cylinders. These improvements are obtained through the use of compounds which increase the oiliness factor of the lubricant. In passenger car engines cylinder and ring wear are decreased as much as 50 per cent through the use of properly selected oiliness agents.

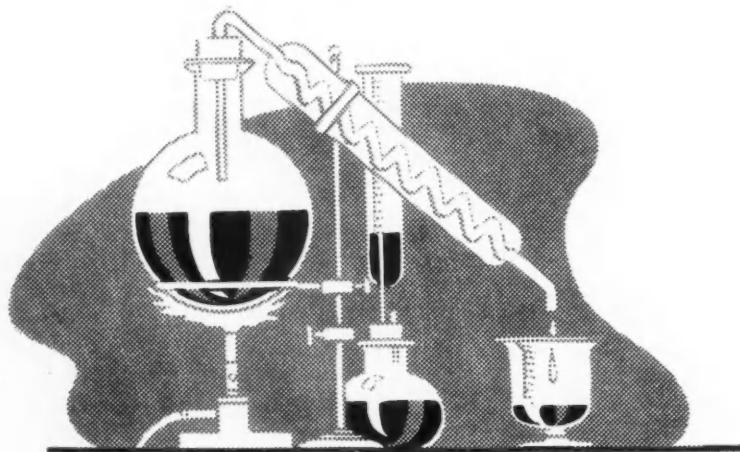
"By incorporating corrosion inhibitors in oil along with oiliness agents, still further reductions in wear appear to be obtained, espe-

(TURN TO PAGE 68, PLEASE)



EACH refiner constantly endeavors to improve the quality of his product as an inducement to the public to purchase his gasoline. No refiner can long afford to produce a product which does not compare favorably with that of his competi-

tors. His gasoline must start the engine quickly, warm it up fast, give good mileage, and have sufficient antiknock value to stand the strains of hills and acceleration without knocking. It must not be corrosive to metals or contain gummy materials in quantities sufficient to aggravate the



formation of engine deposits, clogging of carburetor jets or the sticking of valves and piston rings. In other words, his gasoline must be a balanced fuel, one in which careful attention has been given to volatility, antiknock quality, sulfur content, gum content and chemical composition.

Volatility is one of the most important characteristics of a balanced motor fuel. It governs readiness to start, behavior during warm-up, behavior during normal operation, tendency to dilute crankcase oil and liability to vapor lock. The trend in volatility during the past 10 years has been towards more volatile fuels but indicates a tendency during the last five years to level off. Probably this trend to level off will be extended during the coming years unless there are some radical changes in engine design or operating conditions.

It is often felt by fleet operators that their equipment is penalized by conventional grades of gasoline as a result of this trend toward more volatile fuels. This is not necessarily true. Some investigators have found that fuel volatility, except in extreme cases, has little or no effect on cost per ton-mile. Some have reported that engine power actually can be raised by increasing over-all volatility without adversely affecting gasoline economy. On the other hand, heavy

GAGING

The purpose of this article is to acquaint fleet operators with gasoline specifications by explaining what they are, how they are measured and why and in what degree they are important to them. The material in this article is excerpted from a longer and more detailed paper "Better Fuels for Better Engines" by William H. Hubner, Ethyl Gasoline Corp., which was presented at the SAE summer meeting at White Sulphur Springs, W. Va.

By

WILLIAM H. HUBNER

Ethyl Gasoline Corp.

duty continuous operation with infrequent stops has shown better economy with less volatile fuels.

One of the problems of city operation is the smoke and odor nuisance. A less volatile fuel, particularly in the upper end of the boiling range, would only aggravate this condition unless suitable changes were made in engine and intake manifold design to fully vaporize and burn the heavier materials.

The volatility of gasoline is indicated by its distillation characteristics. The distillation is carried out according to standard ASTM procedure, D86-38, in which 100 cc. of the gasoline are heated in a flask at a constant rate and the vapors are condensed and collected.

Since it is impossible to speak of distillation in general terms, it is customary to refer to specific points on the distillation curve when discussing volatility. The 10 per cent point is generally accepted as a measure of the cold-starting abilities of a gasoline. Readiness to start is also influenced by the slope of the distillation curve at the 10 per cent point, a flat curve indicating better cold-starting characteristics.

Engine behavior during the warm-up period, which includes the ease with which an engine starts, the rapidity with which the vehicle can be

put into service, and initial acceleration, is usually thought to be related to the "front-end" volatility. Different investigators have different ideas as to how this should be expressed. That part of the distillation curve lying between the 15 and 45 per cent points, or even as high as the 70 per cent point, is believed by some to be the best indication of this front-end volatility. Others suggest that the 35 per cent point determines the length of the warm-up period. Still others have selected the percentage distilling below a temperature of 158 deg. F. as a measure of such characteristics. Naturally, all these relations are affected by engine design and by the amount of heat applied to the air-fuel mixture.

Behavior during normal operation is related to the "over-all" volatility of the gasoline. Some consider the 90 per cent point to be a satisfactory criterion of this over-all volatility. Others prefer a combination of the 10, 50 and 90 per cent points. In either case, such relations cannot be defined more definitely than to say

that the lower the distillation curve, the more volatile the gasoline, and, consequently, the more uniform the distribution to the various cylinders and the smoother the operation without the application of considerable manifold heat.

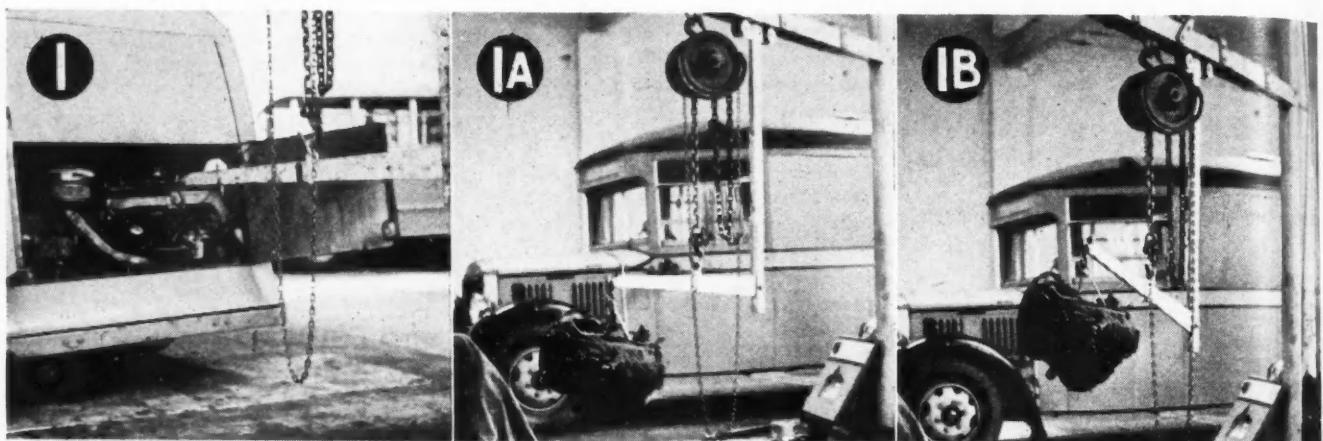
The tendency of the gasoline to dilute crankcase oil increases as the over-all volatility decreases. Since the 90 per cent point, as already mentioned, gives a fairly definite measure of total volatility, it is usually taken as an indication of the tendency of a gasoline to give crankcase dilution. However, where jacket-water temperatures are controlled thermostatically and where crankcase ventilators are used, dilution has become a less serious problem.

The tendency of gasolines to vapor lock in the fuel system of a vehicle or to evaporate during storage, handling or use is, for all practical purposes, measured by the vapor pressure. This assumes that the gasolines used are of conventional volatility. In a properly stabilized gasoline, free from propane, there is an approximate relation between the 10 per cent point and the tendency to vapor lock. It is probably correct to say that, in two gasolines of the same vapor pressure, the one with the lower 10 per cent point or the greater

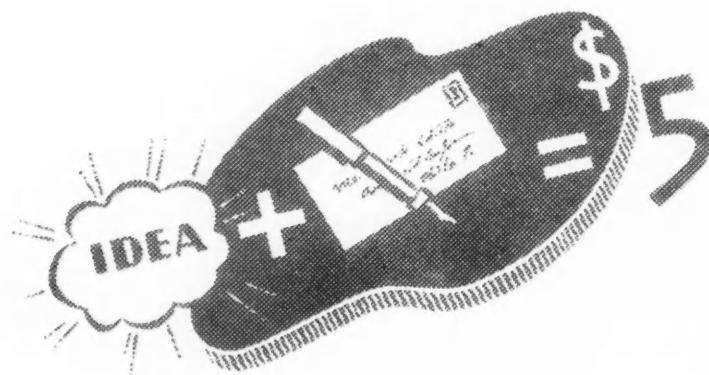
(TURN TO PAGE 62, PLEASE)

GASOLINE

**Is a matter of such specifications as
volatility, anti-knock rating and gum
& sulphur content. An expert tells
what they are and how decided**



SHOP HINTS



C A N Y O U U S E \$ 5 ?

That's what Commercial Car Journal pays for each shop hint accepted for publication on these pages. Simply send in the idea which you believe to be original. Don't worry about style. Acceptance is based on the idea. CCJ will edit it for publication

1. Unit Hoist

By Harry Wille

St. Joseph Railway, Light, Heat and Power Co., St. Joseph, Mo.

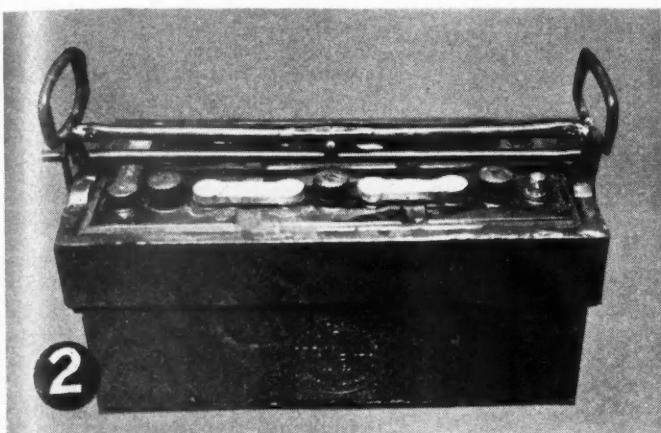
The illustrations show what has been done to make a chain hoist applicable to units that it would not normally lift. The upper beam will swing in a semi-circle and will clear the top of the vehicle. Therefore we can swing the upper beam at a right angle over the top of a front engine job and by placing the lower beam through the door we can hook it on to a transmission and raise or lower it with ease. The lower beam is removable and is built with rollers on top and under the upper beam, allowing free movement forwards or reverse in line with the upper beam.

2. Battery Carrier

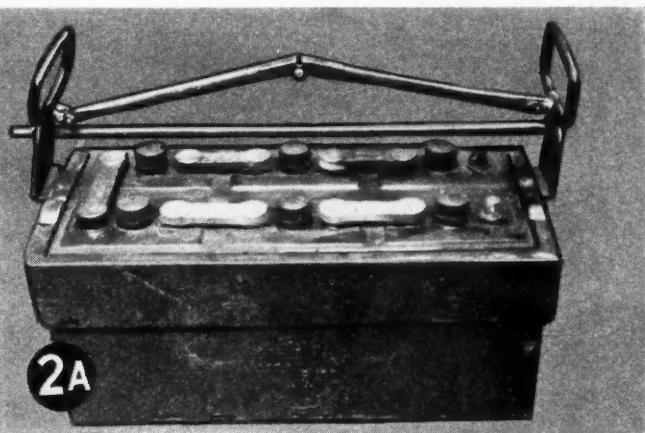
By Harry Wille

St. Joseph Railway, Light, Heat and Power Co., St. Joseph, Mo.

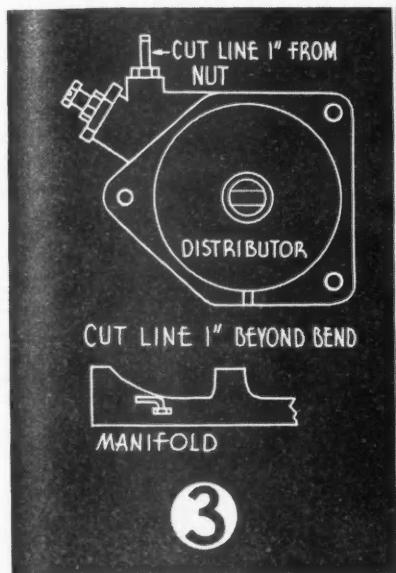
Illustrated is a battery carrier for a 12-volt battery. This carrier is built with a breakdown brace which serves a double purpose. First, safety by holding the battery very rigid while handling, and second, convenience by making it very easy to install or remove a battery. The rod holding the handles is insulated with a piece of loom. One handle is fastened securely to this rod with a nut on each side. The other handle is loose on the rod with a nut for the outside for making adjustment for fit and holding the handles against the battery.



2

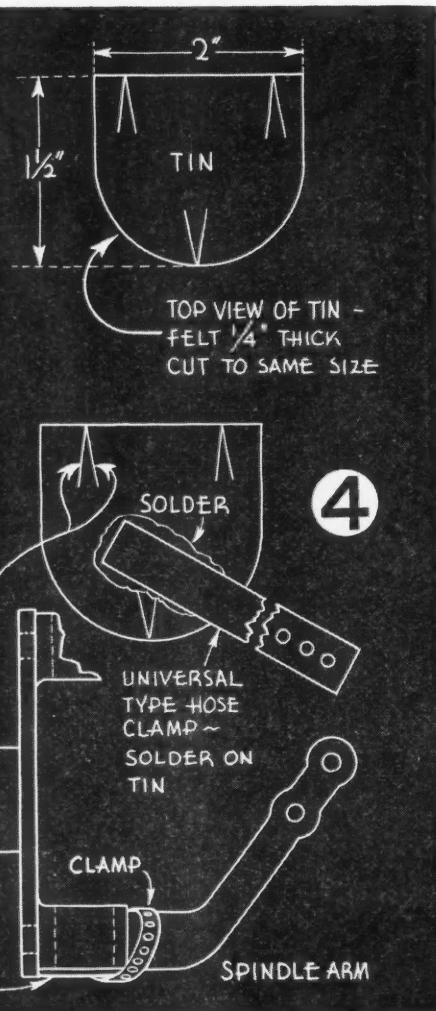


2A



CUT LINE 1" BEYOND BEND
MANIFOLD

3



3. Distributor Connection

By Goodman Hall

S. W. Nelson Truck Co., Los Angeles, Cal.

We think we save a good deal of time in changing the distributors on our Ford V8's since we have cut the vacuum line and substituted 3/16 in. windshield wiper tubing. We cut the line 1 in. from the nut on the distributor end and 1 in. from the bend at the manifold end.

4. Grease Retainer

By George Bacher

General Baking Co., Coatesville, Pa.

We put lower grease retainers on all of the 1939 and 1940 Fords when we overhaul the front spindles. This is done to keep the grease in and the dirt and water out. To do the job we take a piece of tin as shown and cut a piece of felt to match. The tin is cut to make prongs to hold the felt

and then a universal hose clamp is soldered in place to hold the assembly in position.

Anti-Corrosion Washer

F. R. Crawford

Riley Truck Line, Pratt, Kansas

To stop corrosion at battery terminals we have been soaking Ford Model A water pump felt washers in lubricating oil and when they are thoroughly soaked installing them on the battery post. They should be installed under the clamp terminal where they will stop corrosion from forming for a long time. The washers can be split in half and two made from each one.

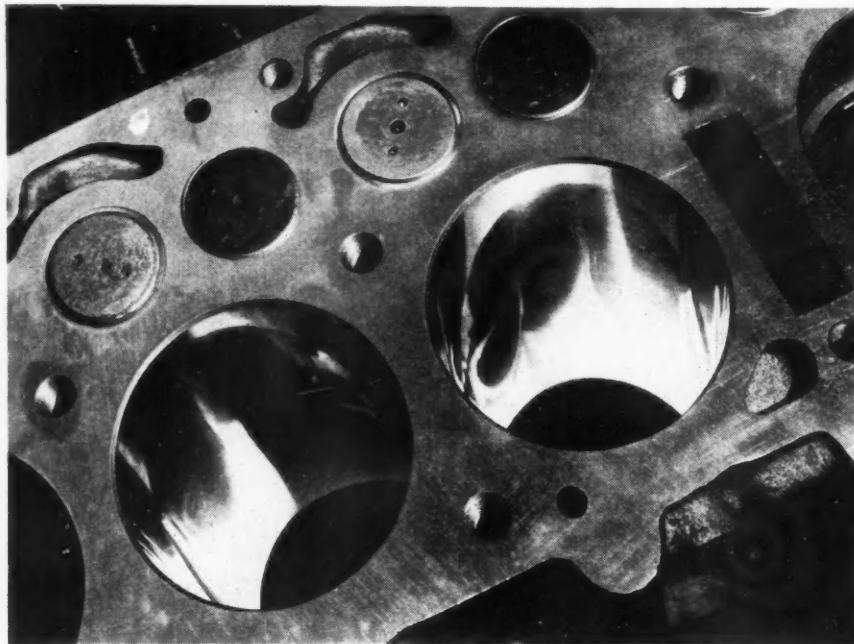
Power Emergency Brake

By Fred A. Rushing

Austin Bridge Co., Dallas, Tex.

Most trucks have the parking brake on the drive shaft or on only two wheels and we have found that this is insufficient brake to hold a truck while using a winch. In addition the driver needs both hands and feet free for the accelerator, clutch and winch controls.

In order to make our trucks hold for winching operations and leave the driver free to control the winch we have installed hand controls for service brake vacuum booster on the steering post which operate the brake regardless of the position of the foot pedal. Once the brake is put on by the hand control it stays on until released by the hand control. This use of service brakes for parking can be worked with either air suspended or vacuum suspended cylinders.



CHROMED CYLINDERS

Reveal startling wear resistance in varied road & laboratory tests



Hendrick van der Horst, plating proponent whose developments are discussed herewith

WHENEVER a discussion of cylinder wear lasts long enough the subject eventually gets around to the chrome-plating of cylinders as a means of retarding wear. Just how much benefit would be derived from chrome-plating cylinders has been a

matter of speculation among fleet operators and manufacturers alike. Despite all of the discussion COMMERCIAL CAR JOURNAL has been unable to discover any evidence that any automotive cylinders were being chrome-plated in this country and

consequently no test data of any sort were available.

This was before Hendrick van der Horst came to this country from Holland to promote his patented process of applying chrome to cylinders and other wearing parts. While his report at a Philadelphia SAE meeting did not reveal any progress in this country it did provide evidence that chrome plating was used extensively abroad. Mr. van der Horst first began plating engine cylinders with chromium in 1931 and by 1932 he had successfully plated a number of cylinders commercially. In 1932 Mr. van der Horst's plant plated a number of cylinders in Kromhout 2-cycle diesel engines that are still running. In the same year Mr. van der Horst started plating cylinders for the Amsterdam branch of Citroen, a French manufacturer of cars and trucks.

In 1939 Kromhout Motors making the English Gardner diesel truck under license was using ordinary cheap cast-iron for engine blocks with chrome plated wet sleeves and in this way were holding the cost of the engine actually below the cost of the engine using a high quality engine block without chrome-plated cylinders.

This progress abroad should be encouraging to fleet operators who have been looking for and talking about chrome-plated cylinders as a means of reducing maintenance costs in automotive fleets.

At first, cylinders were plated with the regular dense chrome which is the familiar finish on bumpers, lamps and other accessories. This mirror-like finish was excellent—except for the fact that oil would not adhere to it and therefore it could not be lubricated satisfactorily with mineral oil. Before admitting defeat with the bright-finish, dense chrome, Mr. van der Horst took the problem to the oil refiners. After a time they returned with the sad verdict that a cylinder so plated could be lubricated only with a lubricant containing a high content of animal oil.

Since animal oil is not a very satisfactory lubricant for automotive engines for a number of reasons, the whole idea of chrome-plating cylinders was almost abandoned. But since it seemed to hold such attractive possibilities and because Mr. van der

(TURN TO PAGE 48, PLEASE)

MR. O. M. BREDE, of General Motors Truck Co., has defined "Preventive Maintenance" as a method devised to prevent repairs. Mr. H. O. Mathews, of Public Utilities Engineering and Service Corp., has stated that, "the job of providing a satisfactory preventive maintenance plan rests jointly with the owner, the dealer and the manufacturer." From these two statements, we have a definition of our subject and a list of the people directly responsible for the process.

Mr. Brede further stated: "Exact periods are established by maintenance history and governed by the type of operation." Without wishing to take issue with this conclusion, it may be wise to raise the question—Is there such a thing as an exact period? The fundamental concept of inspection and parts replacement at predetermined periods based on maintenance history is expressed by the ancient adage, "History repeats itself." By this method of reasoning, it is concluded (for example) that if a reasonable quantity of a certain part failed at about 50,000 miles of service, that mileage establishes the fatigue point or the wear limit of the part in question and consequently the part should be replaced at a lower mileage.

The alert maintenance supervisor should have, in his make-up, a certain modicum of the attitude expressed by the more modern and disturbing adage, "Conditions are constantly changing." The part which failed at 50,000 miles a few years ago may now, owing to changes in design or metallurgy, be safely depended upon to render 100,000 miles of service. Improvements in re-conditioning appliances and processes often prolong the useful life of parts.

The vehicle manufacturer, by maintaining an alert service department, can inform the dealer and the operator when there are improvements in parts and maintenance procedures that will tend to extend the useful life of parts and lengthen the periods for Preventive Maintenance.

On many operations, it is far more important to provide regularity and continuity of service than it is to reduce maintenance cost; consequently, on some operations, the primary purpose of preventive maintenance may

*Paper presented at S.A.E. Summer Meeting, June 11.

SETTING UP P.M. PERIODS

Preventive Maintenance must relate to parts failures. A 6-point plan

By W. A. TAUSSIG*

Burlington Transportation Co., Chicago



be to prevent road failures. While preventing repairs in the shop is of consequence, it may be of lesser importance. I think that this is particularly true in common carrier operations.

To establish mileages at which certain parts or units should be in-

spected, adjusted, overhauled or replaced, it would seem that the proper sequence for the operator to follow, should be as follows:

- (1) Obtain the advice of the vehicle manufacturer and start with recommended mileages.
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THE driver of a motor vehicle is faced with problems, only partly duplicated in other fields of transport. Quick and safe solution of these potential problems depends more on good visual acuity (Sharpness of vision) than almost anything else. Need for good eyesight has, of course, been recognized ever since the motor vehicle began to pick up speed and the commercial driver was called upon to be responsible for millions of tons of freight.

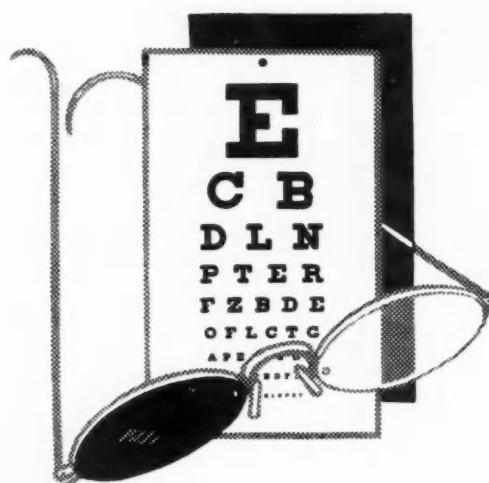
But while the eyesight was recognized as important, it was not until the past few years that studies were made to determine exactly what factors of defect made it so important. A mass of evidence is accumulating to show that not all "good eyes" are as good as they seem from ordinary tests. Despite eye-examinations, accidents logically traceable to eyes continue to occur.

Competent research workers in the field of vision, began a few years ago to make detailed studies of visual acuity and accompanying speed of physical reactions in drivers of vehicles. Probably foremost among such research workers is Dr. Harry H. De Silva, heading the Institute of Human Relations at Yale University. The goal is to build up a fund of practical knowledge on the peculiarities of individual drivers, both good and bad, from which scientific general conclusions may be drawn. Even now this work, by no means completed, is beginning to form a sound basis for education of the individual to know his possible deficiencies and make necessary compensatory personal adjustments.

Accumulating evidence indicates that 50 miles an hour may be safety for one driver; potential disaster for another. The reason in the great majority of cases in unrecognized eyesight defects that definitely retard the individual's reaction time at a moment of stress.

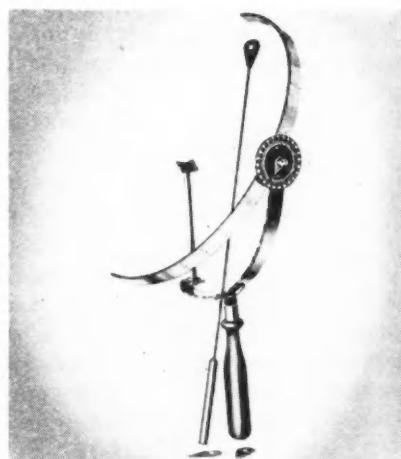
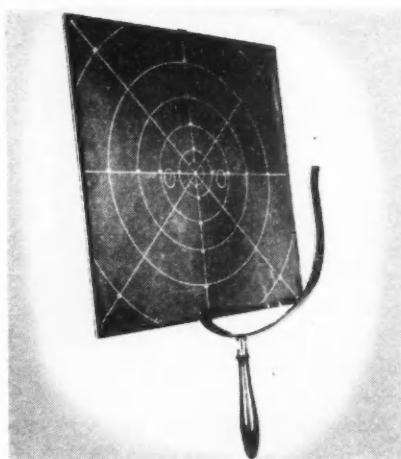
But there is still lack of uniformity and general tardiness of action toward more severe and accurate visual acuity tests. Only about 20 States check on vision for drivers' licenses. Also, there is but little agreement as to the desirable visual standards.

"ONE EYED" DRIVERS



Scientific studies indicate that checking eyesight of drivers and correcting defects represent a fundamental approach to fleet safety

By GEORGE HERRICK





The large fleet owner in many cases is giving ordinary tests to applicants. More could undoubtedly be done privately as a contribution to safety and as a public contribution to more knowledge about eyes and men.

The question of why some people see better at night than others or react to normal from sudden glare more quickly, is beginning to be answered, but much more data is needed. Evidently presence or lack of what is known as visual purple is a direct influence. Visual purple comes from Vitamin A. Its lack may

Opposite page: The hand campimeter (left) tests for extent of blind spots, while perimeter (right) detects basic field of vision. **Above:** Morgan B. Spier, Jr., Safety Director of Horton Motor Lines, puts a driver through one of a series of standardized eye tests

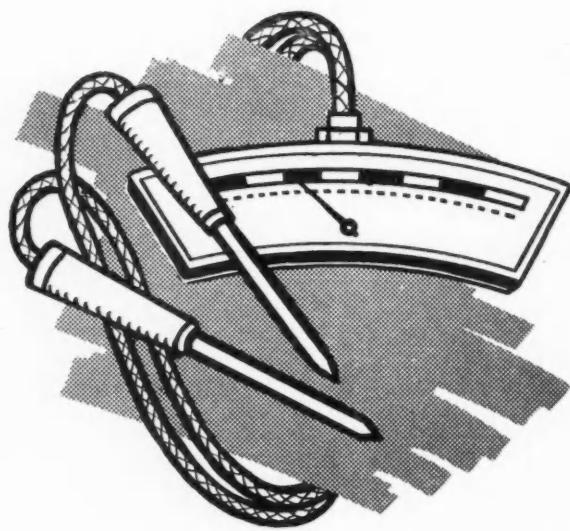
be from natural inability of the individual's system to convert enough of the vitamin to use. But while this was being accepted, research has been developing another probable cause of poor visual acuity in certain persons. It might, in all

seriousness, be labeled the "blonde and brunette" theory.

According to independent investigators, the driver with light blue eyes may have to exercise more care in night driving than the dark-eyed person. "It has been noted that light-eyed persons can see less well under low illumination than dark-eyed persons," according to H. Helson and J. P. Guilford, in the *Journal of General Psychology*, in 1933.

It is said to be a well-known fact that albinos, who lack retinal pigment in the eyes, see poorly not only

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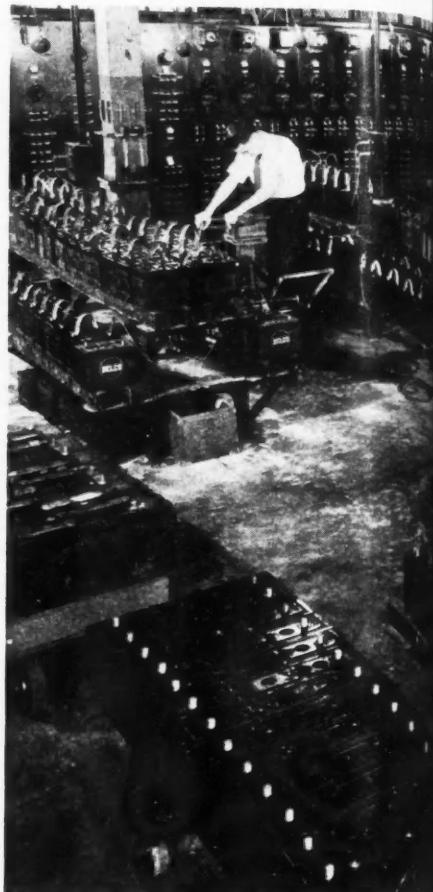
BUYING BATTERIES

How to select the right batteries for particular vehicles; how to maintain them, and principal service failures to guard against



By RALPH SEABURY

Delco-Remy electro-chemical engineer, well known in battery industry circles

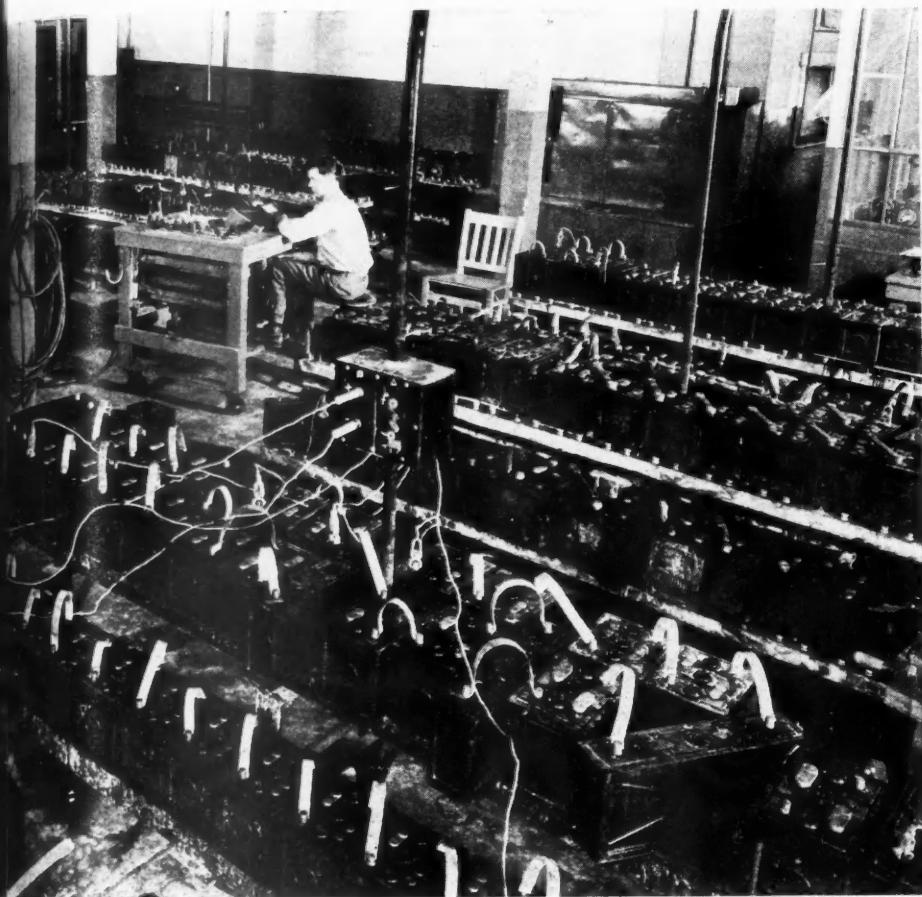


In the rating laboratory, engineers

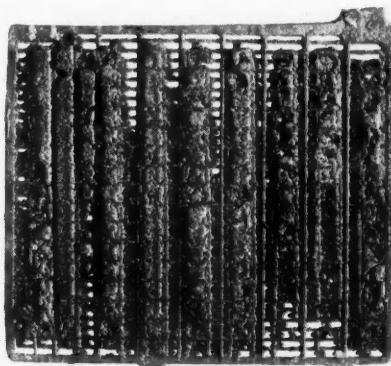


THROUGH the proper selection and maintenance of his batteries, the commercial vehicle operator will be able to hold his battery costs to a minimum and get more battery miles per battery dollar. For most economical battery operation, it is necessary to not only put some thought on proper battery maintenance, but also on how to go about selecting the proper battery for the application.

Proper selection of the battery must come first, of course. Accurate records of battery life which tie down to the individual battery the original and operating costs, help in determining which make and model of battery is best for the application. Further consideration can also be made on the basis of the battery ratings. There are several standard ratings in common use, the one most widely referred to is the "Twenty-Hour Rate." The "Twenty-Hour Rate" represents the lasting power of a battery on a small load. This rat-



get the low-down on battery performance by subjecting units to standard tests



This worn-out positive plate, through successive charging and discharging has shed most of its active material

ing is based on a starting battery temperature of 80° F. and a constant current output for 20 hours with a final limiting voltage of 1.75 volts per cell. For example, a battery capable of delivering 5 amperes for 20 hours without dropping below 1.75 volts per cell is rated as a 100-ampere hour battery.

The "Twenty-Minute Rate" indicates the battery's normal starting ability. This rating represents the discharge rate in amperes at which a battery may be discharged for 20 minutes before the voltage drops to 1.6 volts per cell. For example, a battery with a 120-ampere "Twenty Minute Rate" can supply 120 amperes for 20 minutes before the battery cell voltage drops to 1.6 volts per cell.

Another rating known as the "Cold Rate" is a measure of the battery's cold weather starting ability. This rating indicates the number of minutes a battery will deliver 300 amperes with the battery at 0° F. be-

fore its cell voltage drops to 1.0 volts per cell. There are other ratings in use which supply still more information about a battery's performance characteristics. The "Five-Second Cold Rate" indicates the voltage to which the battery will drop after having been discharged at a rate of 300 amperes for five seconds with the battery at 0° F.

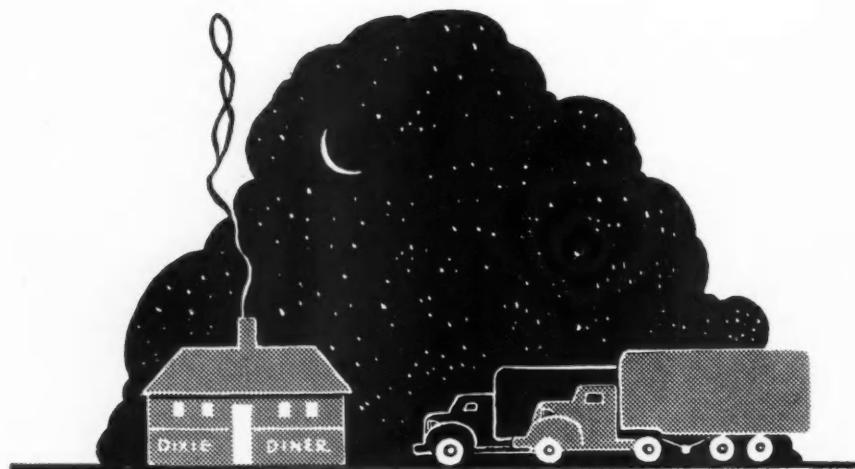
A rating of particular interest to truck operators is the "Four-Hour Rate." This represents the lasting power of a battery with the full electrical load of lights, heater, etc., thrown on it. The "Four-Hour Rate" is the ampere output the battery is capable of supplying for four hours, starting with a battery temperature of 80° F., without dropping below 1.75 volts per cell."

Battery ratings are designed to give an accurate picture of a battery's characteristics. How do engineers go about building these ratings into a battery? What do they do to improve a rating, for instance?

Frankly, to answer that would be a large order. Size, form, and composition of the grids, the area and thickness of the plates, the concentration of acid, type and form of separators, heaviness and composition of cell connectors and terminals—all these play an important part in battery ratings. All must be considered and balanced to obtain the battery ratings required for any particular application. For example, batteries designed for diesel applications must be capable of supplying a much higher cranking current than a gasoline engine would require, because of the high compression and higher cranking speeds required to start the diesel engine. To obtain this high cranking current, we use a large number of fairly thin plates, so there is a great deal of active material in intimate contact with the electrolyte. In addition, we mold copper cores into the terminal posts and cell connectors so as to reduce the resistance which would be caused by lead alone.

In other words, large plate area gives high cranking current. The thickness of the plates is of secondary importance in considering a battery's cranking ability. This is because the chemical reaction which produces the electrical energy has little opportunity to penetrate the plates during the short period the cranking current is drawn from the battery and the chemical reaction takes place almost entirely on the

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THEY DRIVE BY NIGHT

A Warner Brothers movie version of competition, love and hate in the trucking business as portrayed by Ann (Oomph) Sheridan, George Raft, Humphrey Bogart and Ida Lupino

By A. B. LAING
Commercial Car Journal Hollywood Correspondent

Upper right: Waitress Ann Sheridan keeps Truck Drivers George Raft and Humphrey Bogart in their places during lively verbal barrage at Barney's Cafe

Right: Things get complicated when Truck Magnate Carlsen's wife (Ida Lupino) falls hard for Joe, the new foreman (George Raft) while Alan Hale looks on

Next: Carlsen Driver Roscoe Karns takes a temporary beating in a pin ball game



THAT story of the trucking business which author A. I. Besserides titled "The Long Haul," gave Warner Bros. a filmic idea. And very soon, now, the advertisements will announce this "rip-roaring saga of the men who pilot the giant hauling caravans over the nation's highways."

This automotive picture opens, appropriately, in a service station. A big six-wheeler pulls in. George Raft (at the wheel) is a quiet, forceful character who is stubbornly convinced, despite all the adversities of free-lance truck ownership, his future lies with the haulage business. Sound asleep at his side, his brother (Humphrey Bogart) bitterly resents the road and its hazards. Bogart, in fact, has a "down" on most everybody—contractors who don't pay off on their jobs and Charlie Halton in particular, the finance company's representative, who is always after them for back instalments on the truck.

The car is gassed. "You'll have to put it on the cuff, Pete," and starts rolling again. Joe tools around a curve at a fast clip to come suddenly upon an old jalopy draped with high school kids trying to pass another



truck on his side of the white line. A collision seems inevitable.

But Joe swings the wheel hard to the right and the truck leaves the road with a terrific bounce. The vehicle comes to a safe stop, but the right wheel buckles like a hairpin around a tree.

"The dirty road hogs!" Bogart starts in, but Joe sends him up the road to try and promote a new wheel



while he goes back to Barney's cafe to call the chiselling operator for whom they've been freighting apples and who already owes them for several previous jobs.

In Barney's he gets into a crackling exchange with the new red-haired waitress, Cassie (Ann Sheridan in real life) is described in the script as "a gal who fills out her clothes very, very fetchingly and who not only

knows all the questions but can handle all the answers." As for instance:

"Hey, Red," says JOE, "I'd like a cup of coffee. How about taking my order?"

CASSIE: How about takin' your time?

PAUL (ogling her): Nice chassis, huh, Joe?

JOE: Classy chassis.

CASSIE: And it's all mine, too, which is more than you can say for your truck. I don't owe any payments on it.

JOE: I'd be glad to finance it, baby.

CASSIE: Who're you kiddin'? You couldn't even pay for the headlights. Do you want anything else?

JOE (coolly appraising her): Yeh, but it ain't on the menu.

CASSIE: And it won't be. You better settle for a hamburger.

JOE: Ok — with lots of onions. (Later he and Paul finish and rise to

leave.) I'll be seein' you tonight.

CASSIE: Thanks for the warning.

A truck driver at that moment hits the jackpot on a slot machine and Joe borrows two bucks for his long distance call to get repair money for the truck. Instead, the contractor tips off the finance company to re-possess Joe's machine.

This move is later thwarted, although Joe loses his load. In the empty truck the brothers start at high speed for San Francisco to do two things: (1) Collect their money; (2) punch "Mr. Williams" in the nose. During a heavy rain, they pick up a hitch-hiker—none other than Cassie who has quit her job because, as she complains, Barney her boss was always making passes at her.

They sight a truck up ahead, speeding in an erratic way, indicating that the driver, whom they know by the car, is asleep at the wheel. Although they try every possible way to attract

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NEW LIGHT-WEIGHT TRAILER KNOWN AS KINGHAM-ZEPHYR

THE Kingham Trailer Company, Inc., Louisville, Ky., has recently marketed a new light-weight trailer known as the "Kingham-Zephyr." It features smooth panel construction and triple rub rails on each side, one at the bottom, center and top of the body. High tensile steel stakes, in addition to the high tensile, bottom side rails, as well as cross sills, add great

strength to this unit. Steel roof bows and steel trim channels with double lapped roof joints insure added strength with no leakage at this point. The pullman type rolled roof allows maximum loading height without seriously affecting the overall height of the unit.

All-steel construction, which has been consistently used for the past

nine years, is still maintained in the construction used today. The standard inside width of the new Zephyr body is 90 in. between plywood lining. The height at the side panel is 7 ft. in whatever length is desired by the customer.

A new frame with side members extending the full length of the body using a high tensile steel X-brace, and the sub-frame made almost entirely of high tensile steel form an ideal base for the body. The upper fifth wheel plate is also of high tensile steel and is reinforced with a flanged V-brace.

This new unit has an improved brake with full "S-type" cams, rollers provided in shoes, and anti-friction bearings, all of which increase mechanical efficiency. All bearing points are completely enclosed for retaining lubricants. Brakes are of the ventilated type. Truss type shoes made of alloy castings with straddle mountings at brake anchors insure permanent alignment.

Improved and wider spring hangers mounted directly under the center of the frame web guarantee a more even load distribution on the frame of the trailer. Long heavy-duty, flat end, progressive type springs are sealed in rubber mountings which eliminate excessive wear. Rubber bushed radius rods are adjustable to provide proper axle alignment.

DIAMOND T MODEL 306 IS NEW HIGHER-POWERED 1½ TONNER

A NEW 1½-ton Model 306 with larger engine, a gross rating of 11,000 lb. and base chassis price of \$695 at the factory, is announced by the Diamond T Motor Car Co. Bore and stroke of the engine are 3-7/16 in. by 4½ in., with an N.A.C.C. rating of 28.36 hp. It develops a maximum torque of 170 lb. ft. and 73 hp. at 3000 r.p.m.

The result of this increased power, according to stop-watch tests, is a 30 per cent faster acceleration and an ability to climb 12 per cent steeper grades in high gear.

This six-cylinder engine of L-head design has a block and upper crankcase cast in one piece of heat-treated

alloy iron. Zollner cam-ground pistons of aluminum alloy have four rings each. Heavy 2½-in. counterbalanced crankshaft carried in seven large main bearings with a total bearing area of 79 sq. in. is another feature. All bearings are of the precision type, and crankshaft journals are electrically surface-hardened by the "Tocco" process. Other notable points of this engine are full depth cooling, side mounted pump and cushion-cradle mounting.

In addition to the standard spiral bevel drive full-floating rear axle with optional ratios of 5.1 to 1, 5.57 to 1 and 6.3 to 1, a single speed axle of greater capacity and also a dual

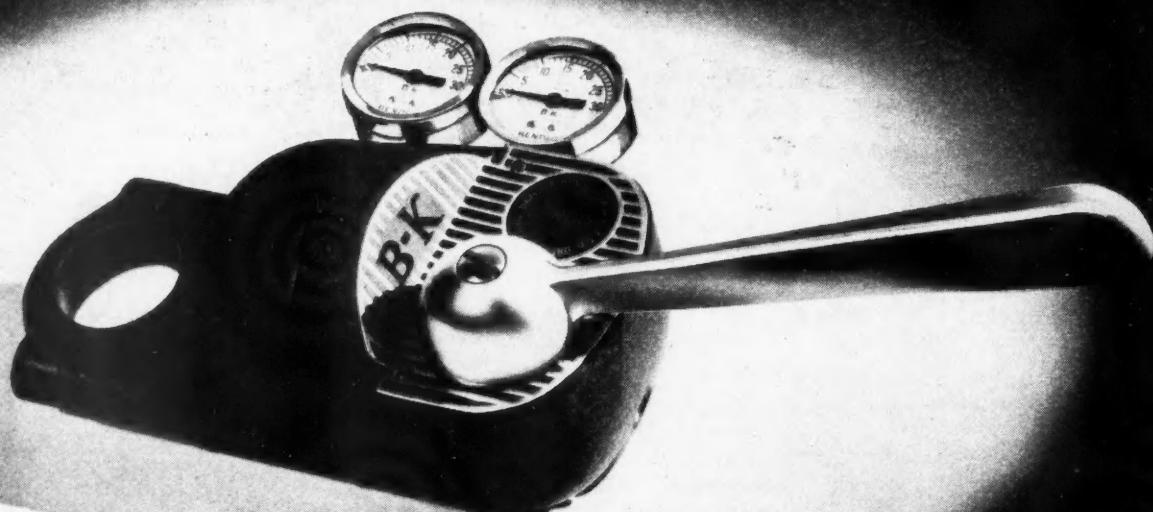


range axle are available as optional equipment. With either of these latter special axles, the truck model designation is 306H and the maximum gross capacity is 12,000 lb.

The special dual-range axle equipment is available in two combinations of ratios: 5.83 to 1 with 8.1 to 1 for most types of service and 5.14 to 1 with 7.15 to 1 for light loads and favorable road conditions.

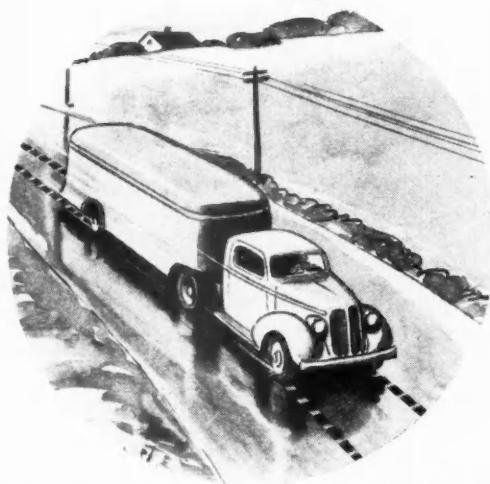
Braking system is internal expand-
(TURN TO PAGE 48, PLEASE)

NO MORE "TRAILER NERVES"!



The New B-K model "R H" Hand Control Valve

A new Bendix B-K safeguard- for Independent Control of Trailer Vacuum Brakes



ASK your drivers who have to "wheel her through" on schedule, A how they like to face a stretch of slippery road or a treacherous down-grade with a heavy trailer to worry about! They'll tell you this new Bendix B-K Hand Control Valve is just what they need to end their "trailer nerves"!

It does this: Keeps trailer from running up on the tractor; stops hazard of jack-knifing; snubs out trailer-weave before it can build up to the danger point.

Features are: "Streamlined" design; 2 gauges—showing vacuum available and vacuum applied; goes on steering post or on panel; lever adjustable to handiest angle; dustproof; smooth and accurate control; accuracy of control not affected by wear.

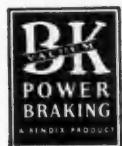
See your B-K dealer—or write for details!

**BENDIX PRODUCTS DIVISION
OF BENDIX AVIATION CORPORATION**

South Bend, Indiana

In Canada: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario, Canada

BENDIX
Controlled Vacuum



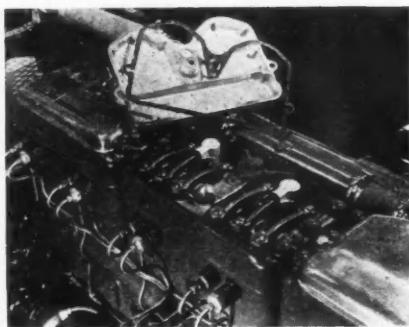
**POWER
BRAKING**

SHOWCASE

OF NEW PRODUCTS

Asbestos-Neoprene Gaskets

An entirely new type of gasket using a combination of du Pont Neoprene and asbestos has been developed by the Victor Mfg. & Gasket Co., Detroit. Laboratory tests show no disintegration after 500 hours in extreme pressure lubricant heated to



200 deg. F., or after 700 hours in an aging oven at 170 deg. F. The new gaskets are available for most applications where paper or cork gaskets are used, but they are not expected to replace metallic asbestos gaskets. Illustration shows use in valve rocker cover of diesel engine.

Dry-Zero Bound-Batt

The demand by an increasing number of customers for its new Bound-Batt insulation has caused the Dry-Zero Corp. to discontinue the sale of Dry-Zero Sealpad insulation, effective June 1.

As an accommodation to customers who desire a more rugged paper covering, however, the company will on request cover the Dry-Zero Bound-Batt with the same weight of paper formerly used on the Sealpad. The new Bound-Batt in this form will be available with or without the sealing flange and can be applied in the same way as Sealpad. The only way it will differ from Sealpad will be in the edging, which will be sprayed with "Flexitite" instead of being edged with muslin.

Full details from the Dry-Zero Corp., 222 North Bank Drive, Chicago.

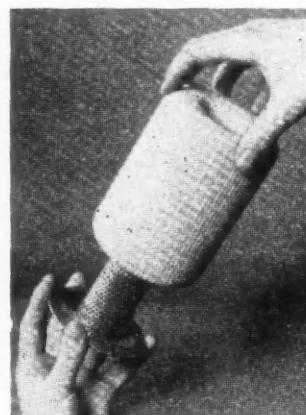
New Timken Bearing Series

The Timken Roller Bearing Co., Canton, Ohio, has a new bearing series of the standard "SS" type which in addition to those now available provides a wide range of

capacities, varying in cone bores from $\frac{3}{4}$ in. to $12\frac{1}{2}$ in. The "SS" series are single row bearings with steep cup and cone angles. They are designed primarily to handle those loading conditions where thrust loads are large compared to the radial loads. Their design embodies the primary Timken principles of "On Apex" construction, which assures true rolling motion, and positively aligned rolls, which prevent roll skewing. The multiple perforated Timken cage retains the rolls equally spaced around the bearing periphery.

Low-priced AC Elements

New low-priced oil filter elements, known as the "Argo" line, are announced by AC Spark Plug Division of General Motors. The "Argo" line contains types adaptable for all popular makes of filters, and, according to AC, completely fills the demand



for a low priced product to serve as a companion line to the AC Kleer Kleen Igneonite element. To adapt the element to some types of oil filters it is necessary to use a metal conversion unit, which AC has made available.

New Cold Stripping Solvent

The Curran Corp., Malden, Mass., manufacturers of Gunk, has announced a new cold tank stripping solvent. It is claimed that the new carbon and gum solvent is unusually effective for cleaning and brightening carburetor and fuel pumps, as well as removing tarry deposits from aluminum or magnesium metal without harmful effect. Full details from the manufacturer.

New Items from Schrader

The new Schrader 440 Valve Cap and the 1440 Valve Cap Socket Wrench are the most recently developed products of A. Schrader's Son, 470 Vanderbilt Ave., Brooklyn, N. Y.

The new cap, designed especially for inner dual tires, features a sealing washer of a special heat-resistant rubber compound which is said to last much longer, under the excessive heat conditions found in



inner dual tires, than ordinary units.

The wrench has an internal grooved socket to grip the cap knurling and a rubber sleeve which prevents the cap from dropping out of the wrench socket while it is being applied. A long extension handle makes it easy to apply and remove the inner tire caps.

New Hammer from Milwaukee

A pneumatic body and fender hammer featuring upper and lower floating dollies is the latest item from the Milwaukee Electric Tool Corp., Milwaukee, Wis. The unit has a maximum job clearance of $2\frac{3}{4}$ in. and may be used with special frames to reach over wide front fenders or in turret top operations. A foot valve with



locking device permits freedom of both hands and feet. It is fully guaranteed for one year and is marketed with equipment for use on fenders only or with complete equipment for both body and fender work.

(TURN TO PAGE 38, PLEASE)



Part of the Exide-equipped Ford fleet
of the Zinsmaster Baking Co., at
Minneapolis, Minn.

Battery adjustments unknown in the Exide-equipped fleets of Zinsmaster Baking Company

WE HAVE used Exide Batteries for a number of years and value them very highly from a service standpoint. We do not know what adjustments *are* on the type of battery we are using, and would highly recommend Exides to any fleet operator."—Mr. E. A. Wahlund, Supt. of Transportation, Zinsmaster Baking Co., Duluth, Minn.

The fleets of the Zinsmaster Baking Co. are operated in Minneapolis, St. Paul, Duluth, Hibbing, Minn., as well as distributing points in northern Wisconsin and Michigan. In northern Minnesota especially, winter temperatures drop as low as anywhere in the U. S. Yet the experience of this fleet operator has been that Exides deliver dependable service winter and summer, and long, trouble-free life. The credit for this

excellent battery performance is shared by the fleet operator and Exide Batteries alike.

This is the type of service that cuts battery cost per mile. Exide engineering has developed a startling improvement in plate design that enables Exide Heavy-Duty Truck Batteries to deliver an average of 25% longer life. These batteries are also available with wood and fiberglas separators for "cycling" service. See your Exide Wholesaler today, or write to us.



Exide
HEAVY-DUTY
TRUCK BATTERIES

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

NEW PRODUCTS

(CONTINUED FROM PAGE 35)

10 in. Tool Room Bench Lathe

The new 10 in. swing 1 in. collet capacity series "S" tool room bench lathe recently announced by the South Bend Lathe Works, South Bend Ind., is designed for precision operations on small work. Features include extremely sturdy welded steel bench, large in diameter hand wheels, and smooth operation at high spindle



speeds through belt drive. Standard spindle speeds range from 50 to 1357 r.p.m.

Sioux Direct Drive Shaft

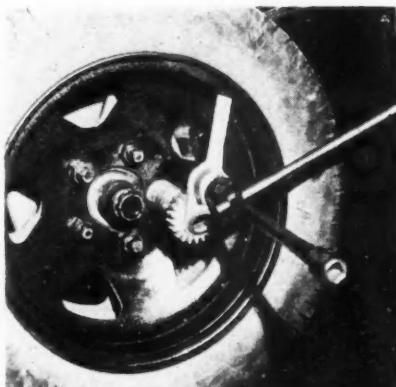
A new direct drive flexible shaft is the latest addition to the line of Sioux equipment manufactured by Albertson & Co., 3100 Lowell Ave., Sioux City, Iowa. Power



is furnished by a ball bearing, capacitor type, permanently lubricated motor of either $\frac{1}{2}$ or $\frac{3}{4}$ hp. The roller bearing shaft is packed in a special lubricant which demands no further attention. The unit is provided with 10 ft. of three-conductor cable, the third wire being for ground.

Geared Wheel Nut Tool

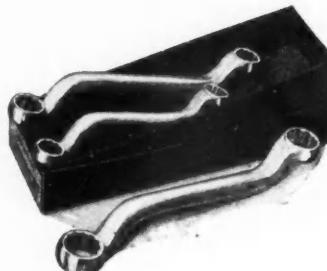
A geared wrench adapter, designed especially to solve the problem of tightly locked outer wheel nuts on Budd dual equipment, has been put on the market by the A. & A. Manufacturing Co., 843 N. California Ave., Chicago. Said to be the only gear-powered



tool of its kind, it is a simplified unit with a 3 to 1 ratio, to be used with any regular Budd wheel wrench, and can be handled by one man on the road or in the shop. The price is \$9.95 F.O.B. Chicago.

Williams Auxiliary Wrenches

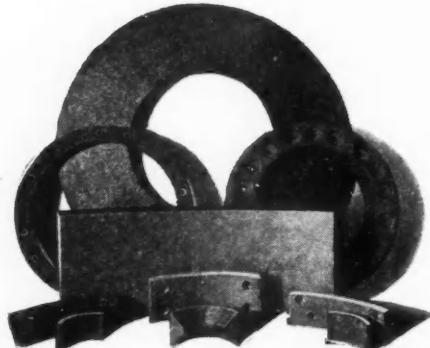
The short wrenches found in the companion Williams' Sets No. 9703 and 6703 fit into the repair picture as handy auxiliary tools on the road or when regular



wrenches are in use. The former set contains 3 double offset "Superrenches," while the latter is composed of 3 fifteen degree angle offset "Superrenches." With thin wall heads for work in cramped quarters, the 6 wrenches have twelve point openings in each head, preventing slipping and rounding of the nut corners. J. H. Williams & Co., 225 Lafayette St., New York, N. Y.

Industrial Friction Materials

To meet the exacting needs of industrial and farm equipment users, the Raybestos Division of Raybestos-Manhattan, Inc., Bridgeport, Conn., offers a complete line of friction materials for tractors, bulldozers,



cranes, power shovels, donkey engines, etc. There's an industrial catalog available from the manufacturer.

Tire Spreader by Northern

The "Long" Universal tire spreader is the latest piece of equipment to be placed on the market by the Northern Equipment & Sales Co., Menominee, Mich. Made in two units, one of which is portable and the other of the bench type, the spreader will perform its job on any size passenger



car, truck or tractor tires. Locking in place is accomplished by means of a foot lever. By use of the lever handle, it will bulge the casing for "skiving" and will hold the casing in four positions for inspecting or buffing. The tool is light in weight and its overall length is 28 1/2 in.

Manual ReserveOILer

A new manually-operated reserve oil tank designed for permanent mounting on truck



engines has been developed by the Rapids Products Co., Cedar Rapids, Iowa. Known as the ReserveOILer, the tank is fitted with four hand-operated valves which release 2 qt. of oil at a time, direct to the crankcase. Danger of overfilling, due to the failure of automatic equipment, is thus eliminated. The tank holds 2 gallons and measures approximately 12 in. x 12 in. x 12 in.

(MORE NEW PRODUCTS ON PAGE 100)

"A.W." Quality PRODUCTS *from Mine to Consumer*

Carbon, Copper or Alloy Steels—in *any* Open Hearth analysis, in *any* quantity—to meet *your* specifications . . . Welding qualities, toughness, abrasion resistance, ductility . . . There is an "A.W." Steel made to Alan Wood standards that will give you best results at the lowest possible cost.

"SWEDE" PIG IRON

Foundry, Malleable and Basic.

INGOTS

Standard and special sizes in any Open Hearth analysis.

BLOOMS, BILLETS AND SLABS

Alloy, Forging and Rerolling.

SHEARED STEEL PLATES

Special Alloy, Tank, Ship, Boiler, Flange, Firebox, Locomotive Firebox, Structural and Dredge Pipe.

HOT ROLLED SHEETS

All qualities, special Alloy, Annealed, Blued Finish, Hard Red, Pickled, or deoxidized.

FLOOR PLATES

For every kind of flooring condition: "A.W." Super Diamond, Standard Diamond, Diamondette, Sunken Diamond and Ribbed Patterns. Any pattern furnished in ferrous or non-ferrous analysis.

CUT STEEL NAILS

"Reading" Brand—all types and sizes.

ALAN WOOD STEEL COMPANY

MAIN OFFICE AND MILLS, CONSHOHOCKEN, PENNA. : : SINCE 1826 : : DISTRICT OFFICES AND REPRESENTATIVES—Philadelphia, New York, Boston, Atlanta, Buffalo, Chicago, Cincinnati, Cleveland, Denver, Detroit, Houston, New Orleans, St. Paul, Pittsburgh, Roanoke, Sanford, N.C., St. Louis, Los Angeles, San Francisco, Seattle, Montreal—A. C. Leslie & Co. PRODUCTS INCLUDE—Steel Products in Carbon, Copper or Alloy Analyses :: Sheared Steel Plates :: Hot Rolled Sheets and Strip :: "A.W." Rolled Steel Floor Plates :: Billets, Blooms and Slabs :: "Swede" Pig Iron :: Reading Cut Nails.

NEWSCAST

BART RAWSON COMMENTATOR



Eastern Combine Progresses

Last month we reported the initial move on the part of Transport Co., New York, to secure ICC approval for its proposed huge eastern trucking combine. There were eight firms mentioned in the first application with a promise that more deals were in the offing. Early in June two more applications were filed that swelled the total to 46 companies to be purchased at a cost of \$22,687,146.

If the combine gets ICC approval it will be by far the largest in the country. Total capitalization is expected to be in the neighborhood of \$25,000,000 with a public offering of \$12,000,000 in common and \$100 par convertible preferred shares underwritten by Kuhn, Loeb & Co.

President of Transport Co. is B. M. Seymour, president of Metropolitan Securities, New York, and it is understood that H. D. Horton of Horton Motor Lines, will serve

as senior vice-president of the new company.

Firms thus far involved in the deal, together with the cash and stock settlements arranged in each case, are listed in the accompanying table. With the single exception of Super Service Motor Freight Co., Nashville, Tenn., all are expected to retain their individual identity.

ATA Pledges Defense Support

As its part in the national defense program, the American Trucking Associations, Inc., has pledged the full support of its membership to the National Defense Commission, in carrying forward the present rearmament program. As an immediate step, a survey is to be instituted to determine the availability of truck equipment and the part that trucks can play in the movement of war materials and supplies, as well as army personnel.

TRUCK PRODUCTION (United States and Canada)

	1940	1939	Per Cent Change
January	74,016	64,093	+ 15.8
February	71,690	63,606	+ 12.8
March	75,285	77,103	- 2.2
April	76,807	68,066	+ 13.0
4 Months	297,798	272,868	+ 9.1
May		63,793	.....
June		66,964	.....
July		62,644	.....
August		40,868	.....
September		27,559	.....
October		65,078	.....
November		73,407	.....
December		83,825	.....
Total		757,006	.....

Bachman Heads Defense Committee

A National Defense Committee headed by B. B. Bachman, vice-president of engineering, Autocar Co., was set up by the Society of Automotive Engineers during its annual meeting at White Sulphur Springs. Purpose of the new group is to coordinate the activities of the Society in connection with preparedness and to expedite services in response to new demands for assistance from military and governmental agencies.

U. S. Court Upholds ICC Stand In Hours of Service Dispute

In a recent 5 to 4 decision, the United States Supreme Court upheld the contention of the Interstate Commerce Commission that its authority to regulate the hours of common and contract carrier employees extended only to those employees whose activities effect safety of operation. That means that only those employees who effect safety will be exempt from the 42-hour work week (40 hours after Oct. 24) provided in the Fair Labor Standards Act.

Drivers (and others who may effect safety) who are exempt from provisions of the Labor Act still come under the 60 hour maximum provided by the Commission rules, and this maximum is not extendable except in an emergency. Employees who do not effect safety may extend their 42-hour week without limit provided they receive time and a half pay.

Still undefined is the line which divides those who effect safety from those who do not. Hearings to determine this question will begin July 23, at the Hotel Sherman, Chicago, conducted by Examiner R. W. Snow.

Retail Sales Up 19%

Retail sales of passenger cars and trucks totaled 385,736 units in May, representing an increase of 19.4 per cent over the same month a year ago and a decrease of 6 per cent from the April, 1940, figure.

May deliveries included 330,765 cars, and 54,971 commercial cars, a gain of 18.3 per cent.

(TURN TO PAGE 42, PLEASE)

Proposed Structure of Transport Co., New York

Name of Company	Cash	Common Stock	Preferred Stock	Total
Arrow Carrier Corp.	\$1,107,000	\$149,445	.....	\$1,256,445
Atlantic States Motor Lines, Inc.	175,000	23,625	.....	198,625
Barnwell Brothers, Inc.	740,117	394,833	.....	1,134,950
Branch Motor Express Co.	287,500	42,883	30,000	360,363
Brooks Transportation Co.	385,000	145,231	.....	530,231
Consolidated Motor Lines (Conn.) Inc.	1,386,478	302,785	13,237	1,702,500
Consolidated Motor Lines (Mass.) Inc.	.....	.....	.....	.....
United-Abour Express, Inc.	.....	.....	.....	.....
United Sales and Manufacturing Co.	581,260	298,375	.....	879,625
Davidson Transfer and Storage Co.	36,500	18,227	.....	52,727
Hampton Roads Transportation Co.	70,000	9,450	.....	79,450
Hertz Drive-Ur-Self Sales Corp.	863,383	145,800	.....	1,009,183
Hertz Drive-Ur-Self Stations, Inc.	900,000	121,500	.....	1,021,500
(Eastern States)	.....	.....	.....	.....
Hertz Drive-Ur-Self Stations, Inc.	926,981	125,550	.....	1,052,531
(Pacific)	.....	.....	.....	.....
Hertz Drive-Ur-Self Stations of Florida, Inc.	56,862	8,201	.....	65,063
Hertz Drive-Ur-Self System, Inc.	72,500	9,787	.....	82,287
Horton Motor Lines (Including Conger Realty Co. and Brown Equipment and Mfg. Co.)	2,625,000	1,347,500	.....	3,972,500
Jay Bee Corp.	465,000	100,875	30,000	595,875
Shein's Express, Inc.	200,000	27,000	.....	227,000
Kirby and Kirby, Inc.	935,000	258,506	55,000	1,248,500
M and M Transportation Co.	690,000	226,500	105,000	1,021,500
McCarthy Freight Systems, Inc.	100,000	41,875	.....	141,875
Southern New England Terminals Co.	153,125	45,500	.....	198,625
Middlesex Transportation Co.	225,000	423,500	.....	1,248,500
Miller Transport Co., Inc.	375,300	61,817	.....	437,117
M. Moran Transportation Lines, Inc.	316,000	81,250	.....	397,250
Motor Haulage Co.	93,750	48,125	.....	141,875
Mundy Motor Lines	262,125	.....	50,000	312,125
New York and New Brunswick Auto Express Co.	619,101	172,179	.....	791,280
Freedman Motor Service, Inc.	450,297	117,203	.....	567,500
Niagara Motor Express, Inc.	275,000	37,125	.....	312,125
Nutter's System, Inc.	121,875	30,062	32,500	184,437
R. S. Robey, Inc.	270,000	70,500	.....	340,500
U-Drivit Auto Rental Co., Inc.	360,000	105,750	45,000	510,750
Pyramid Motor Freight	80,000	10,800	.....	90,800
Rutherford Freight Lines	9,500	1,282	.....	10,782
Smith and Solomon Trucking Co.	380,000	102,750	28,000	510,750
Southeastern Motor Lines, Inc.	.....	.....	.....	.....
Super Service Motor Freight Co.	.....	.....	.....	.....
Transportation, Inc.	.....	.....	.....	.....
The Wright Lines	.....	.....	.....	.....
York Motor Express	.....	.....	.....	.....
R. F. Terminal and Warehousing Co.	.....	.....	.....	.....
TOTALS	\$17,194,644	\$5,103,765	\$388,737	\$22,687,146



LUBRI-ZOL DIESEL LUBRICANTS

increase mileage 10%, keep Diesel at peak performance

"After 150,000 miles in the last 22 months, hauling steel on two trailers over the toughest roads in this part of the country, my HB-6 Cummins Diesel is the cleanest the local agency had ever seen.

"Lubri-D-Zel Oil plus your Fuel Concentrate are entirely responsible. Rings are free and oil ring slots clean as a whistle, bearings in A1 shape, with low liner wear and no sludge in the pan. The oil pump screen is clean and completely free of deposit. Even with the old-style injectors that I used for 55,000 miles I had no trouble and my fuel pump, disc, etc., has never been touched. By using your Fuel Concentrate I increase my mileage 10%.

"You can tell all Diesel owners for me, that until they use Lubri-D-Zel Oil and Lubri-Zol Diesel Fuel Concentrate, they don't know what their Diesel motors can do."

H. J. CASEBEER

Fully Protected by U. S. and Foreign Patents

*Buy your oil on
the cost per mile...
and save.. with*

LUBRI
REG. U. S. PAT. OFF.
ZOL

New Truck Registrations by Makes by Monthst

	Auto-car	Brock-way	Chav- rolet	Diam- ond T	Dodge	Fed- eral	Ford	G.M.C.	Hud- son	Inter- nat'l	Mack	Ply- mouth	Reo	Ster- ling	Stude- baker	White*	Willys	Misc.	Total	
January	1940	143	117	15,997	563	4,345	153	13,282	3,142	56	5,538	572	718	11	22	85	434	173	326	45,650
January	1939	143	127	13,615	378	4,002	85	10,188	2,384	47	4,709	482	507	168	25	169	348	88	250	37,715
February	1940	94	92	14,145	425	4,341	113	12,092	2,724	60	5,009	425	767	4	31	101	380	182	351	41,336
February	1939	134	98	12,007	308	3,821	79	9,224	2,218	44	4,284	398	510	159	29	143	275	97	274	34,102
March	1940	137	123	18,398	573	5,356	161	14,993	3,457	78	6,943	534	949	6	24	154	660	233	316	53,093
March	1939	150	168	16,565	392	4,852	122	11,886	2,772	39	5,507	483	879	175	17	190	371	148	367	45,063
April	1940	152	102	19,038	550	5,534	148	15,077	4,001	90	6,899	652	1,052	6	35	133	834	218	300	54,831
April	1939	149	139	16,373	513	4,692	150	11,501	3,192	52	5,607	551	1,005	107	24	173	404	142	310	45,084
Four Months	1940	526	434	67,578	2,094	19,576	575	55,444	13,324	282	24,389	2,183	3,486	27	112	473	2,308	806	1,293	194,910
Four months	1939	576	532	58,560	1,591	17,337	436	42,799	10,566	182	20,107	1,914	2,901	609	95	675	1,341	475	1,258	161,984
% Change Four Mos.		-9	-18	+16	+31	+13	+32	+29	+26	+55	+21	+14	+20	-96	+18	-30	+72	+70	+3	+20

* Includes Indiana for January and February, 1940 and 1939.

† Includes Oklahoma for first three months only.

NEWSCAST

(CONTINUED FROM PAGE 40)

New York Racket Broken

Local 807 of the Teamsters Union, New York City, was recently convicted in Federal Court and later fined \$10,000 on a charge of racketeering and violation of the anti-trust law. Two of its leaders were given two-year prison terms and 24 others drew lesser penalties.

The defendants, according to testimony, approached incoming trucks bearing out-of-state license plates and told the drivers that only members of Local 807 could unload trucks in New York City. Their charge ranged from \$8.41 to \$9.42, and was often collected without any service being performed. The plan was carried out during 1936, 1937 and 1938 and brought an estimated \$1,000,000 a year to the union's treasury.

72% of Scales Inaccurate

The amazing revelation that 72 per cent of the nation's motor vehicle and wagon scales were found inaccurate was made recently by Ralph W. Smith of the National Bureau of Standards, whose report covered Bureau activities from Nov., 1936, to April, 1940, during which time 2161 scales were inspected.

By industries, the scrap material group and the building material group were found to have the most inaccuracies with more than 8 out of 10 scales defective in each group. The highest score was made in the grain industry.

HANSEN- MODERN as the Most Modern Body

CONSTANTLY modernized to meet the many and varied changes in body designs—ruggedly and durably built to give steady, lasting service—simple in design and easy to apply—Hansen Hardware maintains its established leadership.

Each year Hansen adds new products—new and improved designs—making the Hansen line more complete than ever—from which your principal body hardware needs can be supplied.

Suggested Hansen Hardware for Modern Body Shown

No. 10 Continuous Hinge. Standard 12" lengths make hinges of any length.

No. 12 Leaf-Type Hinge. 12" long. Other lengths available. Strong. Unbreakable!

No. 60 Extension Lock. One piece. No loose parts. Wide striker bolt.

No. 70-DL Lock with Locking Device. Convenient. Tamper proof.

No. 71 Offset Handle. All steel. Easy to grip. Rugged. Durable.

No. 85 Window Regulator. Straight-up lift. Enclosed mechanism. Rust proof.

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A. L. HANSEN MFG. CO.
5047 Ravenswood Ave.
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Lacey Milling Co., Hanford, Cal., uses its Dodge diesel to haul barley from the mill to Sacramento with 18 to 20 tons to the load; claims a 9.75 m.p.g. average on two-way trip.

Every TRUCK DEALER and SALESMAN SHOULD READ THESE LATEST GAR WOOD *BULLETINS



NO OTHER DUMP BODY HAS THESE OUTSTANDING FEATURES

Direct full-length support to floor by integral longitudinals in combination with new trussed-type crossmembers, results in most rigid construction.

Sides and floor sections which form body longitudinals are welded integrally by the newest scientific method—giving maximum strength to floor in resisting shocks and sudden load impacts.

Greater strength in the center area of the floor (which is subjected to more abuse) than is possible with the conventional type of body under-structure.

SIDES AND FLOOR
FORM BODY
LONGITUDINALS
WELDED INTEGRAL

Cross-sectional diagram
of body sides and floor.

GAR WOOD

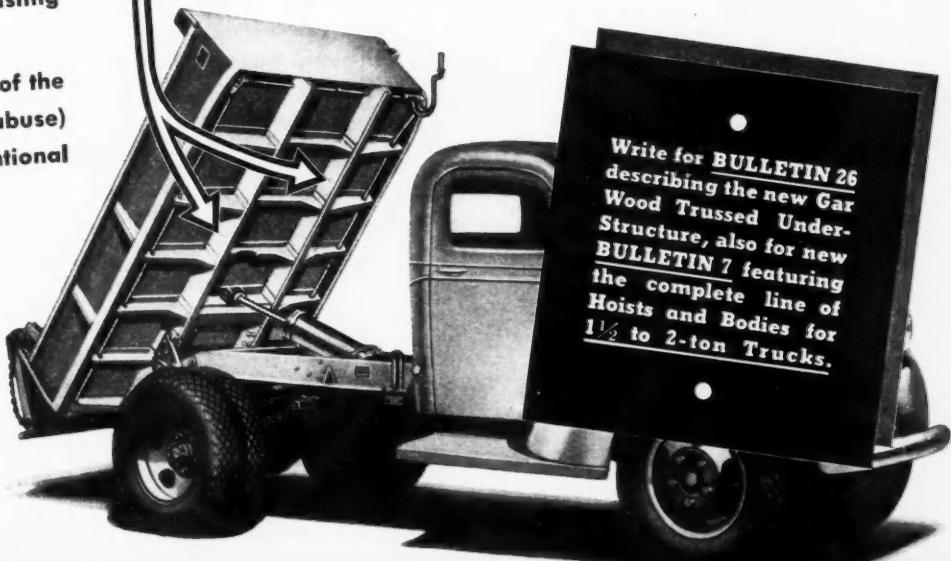
HOISTS AND DUMP BODIES



GAR WOOD INDUSTRIES, INC.

*showing exclusive SALES FEATURES which
increase profits and give your customers
GREATEST VALUE and BEST PERFORMANCE

The new Trussed Under-Structure—the greatest development in dump body construction—is a definite sales hit! Nothing like it on the market (it's patented). Provides a quick and effective way to increase your truck sales by offering your customers the last word in modern design at no increase in present prices—not just another dump body. This and other exclusive features can be had only in Gar Wood dump units.



GAR WOOD INDUSTRIES, INC.

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WORLD'S LARGEST MANUFACTURER OF TRUCK AND TRAILER EQUIPMENT

BRANCHES AND DISTRIBUTORS EVERYWHERE

Hoists and Bodies • Truck Tanks for Fuel Oil, Gasoline, Milk and other Liquids • Winches and Cranes
Roadbuilders • Bulldozers • Scrapers • Tamping Rollers • Rippers

NEWSCAST

(CONTINUED FROM PAGE 42)

Truck Accidents Down 29%

Drivers of motor trucks and buses have earned, by a wide margin, the distinction of being the safest drivers on the highways, Dale Cox, public relations director of the International Harvester Co., said last week in addressing the Eleven Western States Conference of the American Trucking Associations.

Quoting compilations made by the National Safety Council, Mr. Cox said that

since 1927, the year in which records first became available, fatal accidents involving private automobiles have increased by 21 per cent, while those for trucks have decreased by 29 per cent, and those for buses have decreased by 41 per cent.

"Had the drivers of private passenger cars made the same progress in safe driving as the drivers of trucks and buses, the total number of fatal street and highway accidents would have been reduced by now by approximately 33-1/3 per cent," the speaker said.

Penng. Law Contested

Nu-carries, Inc., feeling the pinch of the

much-disputed Pennsylvania law prohibiting car-over-cab operations has brought new equity proceedings in Dauphin County Court attacking the state's interpretation of the law on the basis that, although design of most of their equipment places a car over the cab, the weight of such car is not supported by the truck cab. Thirty-eight of the company's 56 tractor trailer units are of such design.

N. J. Stolen Coal Law Invalid

On a basis that it was a burden on interstate commerce, a Federal three-judge court in New Jersey has held that the state law prohibiting the transportation of stolen anthracite coal (brought in from another state) is unconstitutional. "Relief in this respect must come from Congress," the court said.

Turnpike Opening Postponed

Opening of the new super-toll-road Pennsylvania Turnpike, scheduled for July 4 has been postponed to a date as yet unannounced. On June 12, 92 miles of the 153 miles (exclusive of tunnels) were completed. Abnormal rains were blamed for the delay.

B. E. Blaisdell Dies

Byron E. Blaisdell, of the Transportation Department of Johns-Manville, died suddenly of a heart attack on May 15 in Clinton, Iowa, while on a business trip. His title was that of Staff Manager, Automotive.

Getting Personal

Alvan Macauley, chairman of the board, Packard Motor Car Co., was re-elected president of the Automobile Manufacturers Association at its annual meeting. Robert F. Black, president of White Motor Co., was also re-elected as vice-president, commercial car division.



Louis R. Jones, newly named as chief engineer of the Bendix-Feragen Equipment Division at South Bend

Chalmers Hall has been named wholesale manager of the Fruehauf Trailer Co. and will devote his efforts to the promotion of trailer sales through dealers. . . . Hobart R. Shapaugh, former regional manager of the Reo Motor Car Co., is now Fruehauf regional manager with headquarters in Dallas. . . . Joseph L. Eagle has been appointed branch manager at New Orleans, coming from the Boston district of General Motors Truck. . . . A. T. Yale has been transferred as Fruehauf branch manager from Evansville, Ind., to Tulsa, Okla.

The appointment of J. S. Doyle to the post of Staff Manager, Automotive, of
(TURN TO PAGE 46, PLEASE)

The Servis Recorder

When writing to advertisers please mention Commercial Car Journal

COMMERCIAL CAR JOURNAL
JULY, 1940



FEDERAL FLEETS PROVE IT PAYS TO STANDARDIZE ON FEDERALS

FIND THE FEDERAL MODEL that's designed and built for your specific job—then standardize on that equipment . . . that's the policy that is paying big dividends to such large fleet operators as the Horton Pilsener Brewing Company of New York, which uses twenty-five Federals. It *knows* that such standardization simplifies service and secures important operating economies.

Federal has won its enviable position of preference the *hard way* . . . by proving to fleet owners over a period of years—during which careful records of

cost per mile were kept—the many advantages of Federal ownership. Most of the big Federal fleets started with the purchase of one Federal years ago, and grew through the gradual replacement of all other makes by more and more FEDERALS.

In the complete Federal line—¾- to 20-tons capacity—there is a model that best fits the special requirements of *your* business. The Federal dealer near you is a specialist in commercial transportation. He can show you why and how Federals will save you money—in operating cost and upkeep.

FEDERAL TRUCKS

FEDERAL MOTOR TRUCK COMPANY • DETROIT, MICHIGAN
Leaders in Commercial Transportation for 30 Years

NEWSCAST

(CONTINUED FROM PAGE 44)

Johns-Manville, succeeding Byron E. Blaisdell, deceased, has been announced. He has been Eastern Division Sales Manager in the Transportation department.

George H. Duncan has been made public relations director of Associated Truck Lines, Inc., with offices at the Lansing terminal. Mr. Duncan takes on his new duties in addition to being general freight agent for Michigan and northern Ohio sales.

John Slezak is the new president of Turner Brass Works, Sycamore, Ill., man-

ufacturers of blow torches and other liquid fuel heating devices.

The Mullins Body & Tank Co., long-time Gar Wood distributors, Milwaukee, Wis., has announced the recent appointment of John Weiler as president, succeeding C. J. Mullins, resigned.

The Linde Air Products Co., a unit of Union Carbide and Carbon Corp., New York, has elected T. D. Cartledge and L. A. Bliss as vice-presidents, and E. J. Hayden as vice-president, Central Division. E. B. Suydam is now general sales manager, and P. B. Pew is works manager.

C. K. Bryce has been elected vice-president of Oxweld Acetylene Co., also a unit of Union Carbide and Carbon Corp.

Industrial Highlights

Automotive exports to all countries have declined but 26 per cent during the first eight months of the war as compared with the same period a year ago, according to reports presented at the annual meeting of the Automobile Manufacturers Association. At the same time truck exports to Europe have shown a gain of 18 per cent.

Effect of the war and of increased U. S. army purchases on individual concerns is reflected in the recent announcement of Yellow Truck & Coach Mfg. Co. of the construction of a new 60x500 ft. building adjacent to its main plant, and the purchase of an older building containing 339,000 sq. ft. of floor space plus additional room in five smaller units.

The Autocar Co., Ardmore Pa., reports a half-million-dollar order for four-wheel drive trucks to transport gasoline for the U. S. army air corps; also another order of equal size for additional sanitation units for New York City.

Working on a production schedule of eight hours a day, The Heil Co., Milwaukee, completed an order of 145 unusually large fuel tanks for the French army on June 13. Each tank held 18,000 liters of gasoline (about 4755 U. S. gal.), is complete with its own self-powered pump, and when mounted on truck has a gross weight of 51,000 lb.

Turning to more peaceful enterprises, the U. S. Asbestos Division of Raybestos-Manhattan, Inc., recently set a new all-time high for Grey-Rock sales during the first quarter of 1940. The year 1939 was also an all-time high for company sales.

Allegheny Ludlum Steel Corp. has named the Peden Iron & Steel Co., Houston, Tex., and Murray-Baker-Frederic, Inc., New Orleans, as agents in those areas for Allegheny Ludlum tool and high speed steels. Meanwhile at its Brackenridge plant near Pittsburgh the company recently rolled the largest silicon steel sheet ever produced—64x64 in., 29 gauge.

L. J. Miley Co., Inc., Chicago, has moved its manufacturing equipment and offices to new and much larger quarters at 1062 W. Adams St., Chicago.

HOT
-but not
BOthered

AUTOPULSE electric fuel pump saves you

expensive road delays by eliminating vapor-lock, for it is mounted in a cool spot away from the hot engine and pushes gas. Temperature regardless, it never fails to cure this widespread problem, because

THE ONE SURE REMEDY IS A COOL LOCATION

Why not change-over, and standardize on Autopulse, as many leading fleets have done? Liberal trade-ins allowed on your trouble-making present pumps. You begin saving money with the installation of your first Autopulse Electric Pump.

AUTOPULSE CORP., 2821 Brooklyn Ave., Detroit, Mich.



AUTOPULSE
ELECTRIC FUEL PUMP

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Champion Safe Driver Edward Smithwick with the truck he pilots from Detroit to Kansas City for Automobile Shippers, Inc., Detroit.



FOR LONG, HARD RUNS—
OR FREQUENT STOP DELIVERIES.



SOMETIMES THE DIFFERENCE between profit and loss depends upon your tires. Tires that keep you rolling, and stay on the wheels longer, keep operations "in the black."

That is where Kellys shine. Kellys are "job designed" to lower costs in just

your kind of service. Kellys are tough because of their fatigue-proof "carcass" and *Armorubber* tread that literally outwears steel.

Phone the Kelly dealer. He'll supply you low-cost tire mileage and fewer interruptions to schedules. Your satisfaction guaranteed.

KELLYS CUT TIRE COSTS

Avoid
Expensive Delays
Get Tires that
Stay On Longer



The Kelly Heavy Duty
The Kelly Registered

KELLY

Springfield

TIRES

DEPENDABLE FOR 46 YEARS

CHROMED CYLINDERS

(CONTINUED FROM PAGE 26)

Horst was Dutch and of the persevering type, he continued to play with the idea and suddenly came up with the thought that cast-iron was porous and cast-iron could be lubricated with mineral oil. Why not make the chrome plating porous and imitate cast-iron? He did. It worked.

The plating that is being successfully used on engine cylinders today is porous and it does not have a bright finish. It is gray in color and looks more like a zinc liner than chrome. By weight it is only about 70 per cent as heavy as bright dense chrome for the same volume. It can be applied in any desired thickness. At the completion of plating it is honed only for finish, the size being taken care of by the plating.

The wear experience of chrome-plated cylinders borders on the fantastic. Quoting some of Mr. van der Horst's figures:

"If there is .010 wear on cast-iron cylinders in 100,000 miles then you can expect .001 in. on chrome-plated cylinders. If there is indication that the wear is being accelerated by corrosion due to poor fuel or cold running, the wear on chrome cylinders will be about 20 per cent of the wear on cast-iron. However, if the wear is due to faulty lubrication, poor lubricating oil or to dust entering the engine, the wear instead of being five times better will be around 20 times better."

In a test conducted by the British Institution of Automobile Engineers in which oil was withheld during a five-minute idling period preceding runs of 15 minutes, a cast-iron cylinder wore .0031 in. in 1000 miles. Another cast-iron cylinder wore .0046 in., while a chrome-plated cylinder wore .00015. The top ring wear in the cast-iron cylinders was respectively .0274, .085 and .0031.

Mr. van der Horst does not look upon chrome-plating of cylinder bores as a maintenance job since the plating to be successful must be very closely controlled. Until such time as fleet operators can buy vehicles with chrome-plated cylinders, he suggests that they consider the possibility of chrome-plated piston rings. These, he claims, will lessen the wear on cyl-

inders as well as on the rings themselves. About .001 in. of chrome-plating on rings would be good for about 10,000 miles, according to some tests which have already been conducted.

There is only one caution for the day when both chrome-plated cylinders and piston rings are available. Never install chrome-plated rings in a chrome-plated cylinder. Either is good, according to Mr. van der Horst, but together they are poison.

BUYING BATTERIES

(CONTINUED FROM PAGE 31)

surface of the plates. However, the "Twenty-Hour Rate" of a battery has a very direct bearing on the thickness of the plates since the "Twenty-Hour Rate" is a function of the *amount* of active material available in the battery.

Large plate area also increases the "Twenty-Hour Rate." Anything that increases the volume of active material in the battery will increase the capacity on the "Twenty-Hour Rate." Anything which increases the area of active material in intimate contact with the electrolyte increases the capacity on the "Twenty-Minute Rate" and the "Cold Rate."

There is a relation between the battery capacity on the various ratings and battery life. The larger, heavier plates and sturdier construction used in the higher capacity batteries will give longer life, and the larger batteries, even though representing a larger initial investment, will usually be more economical figured on a mileage basis.

That brings us to the outstanding causes of battery failure.

Aside from failure caused by battery neglect, battery failure usually results from shedding of active material from the positive plates, from the negative plates becoming sandy or wearing out, and from separator failure. Although there is some correlation between these three conditions, each may occur separately as a result from some particular type of operation.

Wearing out of the negative plate material, for instance, during which the material becomes sandy or grainy, is a normal condition, but this action may be hastened by overcharge or the continued input of current to the battery. This, incidentally, does not cause material to shed from the negative plate as the negative plates do not normally shed. The positive plates, however, do shed, and when so much of the active material has shed from the positive plates that there isn't enough left for effective operation, the battery is considered to have failed. Shedding of active material from the positive plates is caused by cycling, that is discharg-

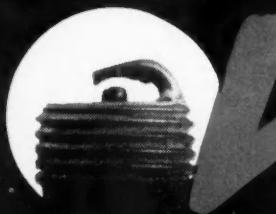
(TURN TO PAGE 50, PLEASE)



Twenty-one new streamlined aluminum-bodied trucks recently delivered to Armour & Co. feature compact Coldjet refrigeration shown mounted at forward end of body. The Coldjet system is made by Industrial Mfg. & Engineering Co., 3447 N. Ravenswood Ave., Chicago

Licked by AC!

Fast Wearing ELECTRODES



WHAT HAPPENED—

(A Michigan grocery jobber's history). With this fleet of 102 vehicles, rapid electrode wear showed up with sufficient frequency to be serious. AC recommended AC plugs one step "cooler," and a regular cleaning and regapping schedule. The fleet is now getting 100% spark plug performance.

WHY AC'S SOLVED THE PROBLEM—

Fast electrode wear is a sure sign that the plug runs too "hot." In this instance, as in hundreds of others, the completeness of the AC Heat Range made it easy to pick a "cooler" plug of temperature characteristics which exactly fitted the operating conditions of the engines.

It is a proved fact that no spark plug trouble has yet appeared that cannot be eliminated with AC Quality Spark Plugs. In fact, the whole answer to spark plug satisfaction can be found in this simple formula:

- 1 Standardize on the right make of plug
- 2 Select the correct Heat Range
- 3 Clean and regap all plugs every 3,000 to 4,000 miles

For Best Performance—Use AC



AC PLUG CLEANER Pays for Itself in Better Service

Cleans fast and thoroughly. Dual control permits cleaning and dusting in one operation. Operates off the air line. Low in price.

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JULY, 1940

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Chevrolet, Diamond-T, Federal, GMC, International and White Trucks; Buick, Cadillac, Chevrolet, LaSalle, Nash, Oldsmobile, and Pontiac motor cars; Allis-Chalmers, J. I. Case, Cletrac, and International Harvester Tractors . . . these are some of the well-known trucks, cars, and tractors which use AC Quality Spark Plugs. Trust your spark plug requirements to the same brand of spark plugs which the leading, big-volume manufacturers select.

(CONTINUED FROM PAGE 48)
ing and recharging the battery. Prime grade Port Orford cedar separators will normally outlast the plates, provided they are not submitted to high gravity and overheating, excessive vibration, or excessive overcharge, and the electrolyte level is maintained in the battery.

What can be done from the standpoint of battery design or manufacture to avoid battery failure from these conditions?

On the negative plate, which nor-

mally fails due to the active material wearing out or becoming sandy, we can exercise extreme care in the preparation of the lead compounds and in the pasting of the active materials into the grid. Voltage regulation also comes to our aid here since the voltage regulator guards against high voltage and the battery overcharge which hastens this wearing out of the negative plate material.

The positive plates shed active material largely due to the internal

stresses set up in the plates by the discharge-recharge cycle. There are several ways of attacking the problem of shedding. One is through design of the plate grids and the procedure of pasting the plates so that the active material is more securely locked into the grid. Another is by the use of special separators which hold the active material in place and thus prevent to a large extent the shedding action. Rubber in various forms has been used for separators, but it is not always entirely satisfactory for every application because it may increase the self discharge rate of the battery and it may also cut down the battery cranking performance. Glass, spun and woven into a fine mat, has proved successful, and its use as separator material has considerably increased the cycling life of batteries—particularly those batteries which are "shedders."

Cycling life of a battery is a measure of how many times it can be discharged and recharged before it falls below a certain level of efficiency, and anything which tends to retain the active material in the positive plates does improve cycling life. This problem of cycling life is of less importance today than in the past, because most applications now have generators of adequate size which can handle the vehicle electrical load. This eliminates rundown batteries and subsequent necessary recharging. Thus cycling, and the necessity of safeguards against failure from cycling, is of less importance today.

With all this in mind, what should a fleet operator look for in selecting a battery?

It depends on several factors. First consideration should be the starting requirements. With an easy-to-start engine not subject to low temperatures, a battery with a fairly low Twenty-Minute and Cold Rates will be satisfactory. But where the engine is hard-starting and must be started at low temperatures, the battery must have ample reserve on these rates to insure starting. It is also important, where battery ignition is used, that the "Five-Second Cold Rating," which is the voltage of the battery after discharging 300 amperes at 0° F. for five seconds, must be such that the voltage will not drop below a value sufficient for

(TURN TO PAGE 52, PLEASE)

Brown Equipment and Mfg. Co.
For Horton Motor Lines

The doors of this heavy trailer are fastened with the Eberhard CLAMPTITE lock . . . a lock which has set new standards for strength, convenience and durability. Sturdy parts and big bearings offer maximum resistance to wear and breakage.

Versatility and dependability are combined in the CLAMPTITE lock. The picture at the left shows another arrangement of the simple standard mechanism, in which the cross handle gives the equivalent of a three-point fastening for smaller doors.

It will pay you to get acquainted with the CLAMPTITE lock. It has the features which insure long, trouble-free service. See your dealer or write to

EBERHARD MANUFACTURING CO.
Division of the Eastern Malleable Iron Co.
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EBERHARD ClampTite
UNIVERSAL DOOR & GATE LOCK
Ask for Bulletin
NO. 130

Sealed Power Offers Individually Engineered Ring Sets

The latest thing in **PISTON RINGS!**

DIFFERENT makes and models of engines vary in design. That's why fleet experts say each type of engine needs piston rings precisely engineered for it—and it alone. Sealed Power today offers Individually Engineered Ring Sets for all popular makes of cars and trucks—featuring rings in each set possessing the correct design, taper, tension and tolerances to secure maximum efficiency for each particular make. These sets take the guesswork out of re-ring jobs. See your Sealed Power jobber—ask for complete facts.

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**SEALED
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RING SETS
for all popular
makes of cars
and trucks

**SEALED POWER
PISTON RINGS**

BEST IN NEW CARS! BEST IN OLD CARS!



(CONTINUED FROM PAGE 50)

good ignition performance in cold weather starting.

The "Twenty-Hour Rate" is important from the standpoint of load-carrying reserve and it must be sufficient to provide ample reserve under all conditions the vehicle will meet. It may even be felt necessary on some types of service, such as inter-city operation, for the battery to have enough reserve to carry the full electrical load long enough to bring

the vehicle in if, for example, the generator should fail.

There is a saying that "if you travel more than 10,000 miles a year you should spend your money on separators, and if you travel less than 10,000 miles a year, on plates."

That remark originated before the days of voltage regulation. At that time, battery overcharge was common on vehicles which were driven to any extent and this was injurious to separators. Remember how we used to drive with our lights on dur-

ing long trips to reduce overcharge? When the vehicle was driven shorter mileages and less frequently, the battery was more subject to cycling and to operation in a discharged condition because the car was not driven enough to keep the battery up. This naturally had a serious effect on plates. Today, conditions are changed because voltage regulation plus adequate generators protect batteries from being overcharged or discharged.

Now let us consider battery maintenance.

Batteries today have a much better chance with voltage regulators than in previous years when they were not used. Because voltage regulators do act as a protection to the battery, care must be taken to maintain the voltage regulator settings by periodic checks of the regulator-generator system. Other points of maintenance include adding water periodically to keep the electrolyte level at the correct height, keeping the battery top clean and the terminal connections clean and tight, keeping the battery tight in its container to prevent excessive vibration and so forth. The time spent in proper battery maintenance will be more than repaid in increased battery life.

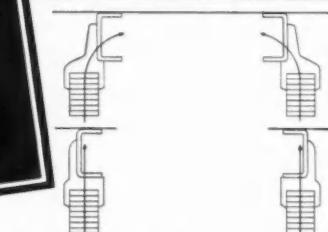
The whole battery industry is united in its efforts to give the consumer a better battery for his money. From all the engineers throughout the battery industry have come improvements, better ways of doing things, of utilizing the battery materials, and these have made possible the present-day batteries which give the customer so much more for his money than ever before.

HERE'S A LIGHTWEIGHT TRAILER THAT CAN INCREASE YOUR OPERATING PROFIT

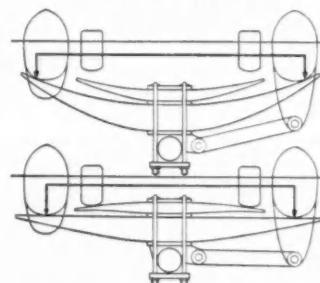


CUTS DEADWEIGHT
without departing from
time-proved design!

EDWARDS Heavy Duty Trailers feature new hi-tensile steel construction. Deadweight is drastically reduced without departure from time-tested principles of design that have proved most satisfactory, most economical to maintain. Simplified springing is but one of 25 important money saving features. Judged by all standards, Edwards Trailers are low in cost, big in earning ability. Don't buy any trailer until you investigate Edwards.



These diagrams contrast conventional side hung springing with Edwards simplified springing. Note how the Edwards method permits wider frame, centers under center axis of frame and gives better support with minimum of twist.



With Edwards straight end springs, spring centers decrease as load increases. Top diagram shows without load; bottom diagram shows with load. This is as it should be for maximum life and riding ease.

EDWARDS
EDWARDS IRON WORKS, SOUTH BEND, IND.

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SEMI-TRAILERS**

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Latest conquest of the air-cooled White Horse is the newspaper field from which come startling claims of success. Owing to the increased capacity over standard panel trucks, the Cleveland Press now operates 10 White Horses over routes previously covered by 13 trucks, at a reported saving of \$234 per week (including labor and operating expenses). A well, just inside the rear of the Model 116, provides ideal space for a "jumper" where two man routes are practical.

COMMERCIAL CAR JOURNAL
JULY, 1940

ON YOUR TRUCKS FOR A BRAKE ON YOUR REPAIR BILLS

Your Grey-Rock jobber will gladly demonstrate. His plan includes a full range of proved materials, a factory-engineered system of combining them, advanced equipment for fitting them, and experts to make personal recommendations where required. He puts the brakes on repair bills when he specifies brake linings and clutch facings for your trucks.



Grey-Rock Rivet-On Blocks—two types used alone or in combination to balance brakes on light trucks and buses. Grey-Rock Blocks (orange edges) medium friction, and HiWaY BloX (black edges) higher friction.

Grey-Rock Bolt-On Blocks for heavy truck and bus operations. Made in 5 types (G-K-R-N-Q) with varying characteristics, factory combined in sets for specific makes and models.

Grey-Rock Recommendation Guide, specifying combinations which balance any brake system under any load or operating condition, and providing all service information.

Grey-Rock Vee-lok Clutch Facing, a revolutionary V-nested endless spiral construction, setting new heavy-duty service standards.

TRUCK BLOCKS

Raybestos-Manhattan, Inc., MANHEIM, PA.

HOSE . . . PACKINGS . . . RELINING EQUIPMENT

"ONE-EYED" DRIVERS

(CONTINUED FROM PAGE 29)

in the daytime but also at night. One investigator of light versus dark-pigmented eyes found that negroes see from two to four times better than whites at night.

Another investigator reports that dark-eyed people withstand dazzling glare better than blondes. Dr. De Silva

and Phillip Robinson in *Science*, Sept. 30, 1938, report similar results from testing 1238 individuals. They suggest that the explanation may be "that light-pigmented eyes, being more transparent than eyes with dark irises, transmit more light." Say De Silva and Robinson:

"We have found that light-eyed persons are under a double-handicap at night: (1) Their eyes are not as sensitive under low illumination as those of dark-eyed individuals, so they are not able to distinguish dim

objects when driving alone on a road at night; (2) they are more sensitive to glare than dark-eyed individuals, so that when confronted by glaring headlights they see the road less clearly. There is also evidence that light-pigmented eyes have larger than average pupils."

If future investigation corroborates these findings, according to the investigators, the motor vehicle driver's problem is as follows:

"(1) Light-eyed drivers as a group should be educated to drive more cautiously at night because of their poorer night vision and their greater susceptibility to glare from automobile headlights. (2) Light-eyed drivers should be educated to protect their eyes by sun glasses in the daytime."

This growing theory of pigmentation, however, does not loom so importantly as the problem of the "one-eyed" driver. He is not a man who has completely lost the sight of an eye and knows it. He is the driver who does not realize his deficiency in one eye and, therefore, does not compensate for it. Investigation indicates that possibly 30 to 40 per cent of drivers have deficiency in visual acuity in one eye.

In California it was found that 20 per cent of all motorists involved in fatal accidents in San Francisco had an acuity of 20/30 Snellen or less in one eye. A check on the nature of the accidents showed in every case that the collision took place on the side of the weak eye. None of the drivers realized that he had a weak eye.

The one-eyed driver has a narrower field of vision. The normal person covers about 190 deg. The one-eyed brethren have a field of 110 to 135 deg., depending partly on protrusion of the good eye and the size of the bridge of the nose. Natural compensation of the handicap is for the driver to keep his head turned at an angle to spread his visual field. Few do this. They either do not know of the deficiency or wish to conceal it.

A hazard faced by the one-eyed driver is the "blind spot." We all have one in a small region of the eye where the optic nerve enters the eyeball. This is in the right of the right eye and left of the left eye fixation point. When both eyes are in use, anything within the blind spot of one eye is visible to the other eye. So, for practical purposes it ceases to exist. But with a deficiency in one eye, this

(TURN TO PAGE 58, PLEASE)



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It Saves You Money . . . keeps your supply of Abrasive Discs in order, always handy . . . saves lost time and wasted energy looking for discs. It holds the discs **flat**—in proper condition for efficient operation, better service and longer life from each disc.

It Costs You Nothing! Furnished **FREE** with the purchase of 100 SIOUX Phenol Abrasive Discs—9-inch or 7-inch, of any grit—in standard packages of 25 of any one size grit. (No. 16 grit, 10 discs to the package).

Shipped only from the factory as a complete unit. Average shipping weight, 45 lbs.

Your Name Printed on Panel. Made of pressed steel with aluminum finish. 5 steel arms with clips that hold discs flat. Capacity, 250 discs. Size 24" x 30½".

You need **BOTH** the Supply Panel AND the revolutionizing SIOUX Phenol Abrasive Discs.

Ask Your Jobber's Salesman

**STANDARD THE
ALBERTSON & CO., INC.**



**WORLD OVER
SIOUX CITY, IOWA, U. S. A.**

(CONTINUED FROM PAGE 56)

field may not be adequately covered. An accident could occur from this, but it is only a bare possibility, because of the normal slight movement of an eye away from a fixed point. Yet, at a distance of 50 feet, the blind spot will cover an area of six feet, enough to conceal a man.

Still another disadvantage for the one-eyed driver is speed of seeing. Two eyes can perceive an object in about half the time that one can see it, according to Richmond and Ebert

in the *United States Naval Medical Bulletin*, 1933. But even though a deficiency exists, it does not necessarily eliminate such a driver from work. Says Dr. De Silva: "The greatest human hazard arises not from the defects but from ignorance of the dangers from such defects. For most of these drivers the solution lies in personal re-education adapted to their individual needs."

Through operation of "Driver Clinics" over the country an effort has been made to accumulate essen-

tial data and educate the public. One such clinic operated in the Bureau of Motor Vehicles in New York, brought out a relatively large number of truck and taxi drivers with repeated accidents . . . 12.4 per cent were truck and 17.9 per cent taxi operators. Data secured included work classification, nationality, marriage status, number of children and other facts. The theory that a married man is more careful than the single one failed in this survey. Of the accident drivers, 60 per cent were married. Of the non-accident drivers only 36.4 per cent were married. This suggests that the old generalization about "taking chances" does not mean much. The "eyes" have it.

While age is a factor in driver efficiency, Dr. De Silva points out that:

"Test results were also analyzed for age trends by dividing each group into five-year divisions. A decrease in efficiency occurred in accelerator, brake and vigilance, reaction time, simple steering, vigilance steering, and glare vision. This decrease started in the age range somewhere between 30 and 40 years for each of the abilities tested."

The conclusion drawn from this study of age is that the "decrease in ability of the older driver is a factor related to accident history to some degree. It should be pointed out, however, that our experience elsewhere has shown that if this decreased efficiency is recognized, a large proportion of the drivers are able to compensate for it and to drive safely thereafter." There is at least a little satisfaction in knowing that science is not about to relegate us all to the scrap heap as incompetent drivers after our thirtieth birthdays.

This, and the many other facts developed by the investigators, indicates the need for several years more of intensive gathering of data, both publicly and privately. Many leading fleet operators give their own visual tests to applicants, but there is much modern equipment that has not yet come into common use that would contribute to such tests and enable more accurate and extensive findings.

As previously indicated, the past few years have developed new approaches to the problem of visual acuity in vehicle drivers. Simple determination that a man can read a certain size of type on a chart set at a specified distance is a basic pro-

(TURN TO PAGE 60, PLEASE)



COMPLETE LINE OF HOISTS, BODIES AND TANKS... NATION-WIDE SERVICE



13 cubic yard capacity Heil twin telescopic hydraulic dump unit hauls big pay loads profitably.



Heil Trailered (Frameless) tank - 3,400 gallon capacity . . . The Heil line includes efficient transportation tanks of all kinds.

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Complete line of hydraulic dump units and transportation tanks, correctly engineered for trouble-free, money-making service—the result of Heil's long years of experience and research. • It pays to do business with a substantial organization that gives you quality you can depend on—one that accepts full, undivided responsibility for its claims, and is always nearby to do so. • Get Heil recommendations on your fleet problem. Write today for free catalog.

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JULY, 1940



● Top payloads and fast all-weather schedules put your brake maintenance on the spot. A loaded truck off the road . . . a few over-due deliveries . . . and drivers and brass hats both start growling. That's why you need a *tough* brake lining—American Brakebloc lining with the wire-mesh backing that gives you more miles of safer stops and keeps you "on top" in your shop.

This wire-mesh backing enables American Brakebloc lining to take punishment without shifting or weakening—provides firmer anchorage to the shoe—permits such deep-sunk rivets that you get extra thickness of *usable* lining. That's a help on any cost sheet, and makes the record of "mileage-before-replacement" look a lot better.

All of which adds up in any maintenance man's language to an immediate test installation on the worst trouble-maker in your fleet. Order American Brakebloc lining. You'll like it!

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MORE MILES OF SAFER STOPS PER DOLLAR

(CONTINUED FROM PAGE 58)
cedure, but no longer quite enough to expose possible dangerous eyesight deficiencies. Other equipment is steadily being adopted by public agencies and can be highly useful wherever vision for driving is examined or considered at all.

While a complete set-up, such as a motor vehicle bureau would want and need, would cost somewhat in excess of \$500, no such expenditure is essential for the average fleet owner unless he wants the best and most com-

plete. Formerly, a wall chart to be read at a certain distance would deliver the fundamental results for a very minor investment. But specially developed machines are needed to determine the deficiencies a chart cannot discover, such as the faulty side vision of the one-eyed driver, done with what is known as a perimeter. There is the adaptometer for testing night-blindness showing ability to readjust vision quickly to normal after exposure to bright light, and there is the stereo campimeter

to test the extent of blind spots in each eye. Finally, there is the improved mechanical chart known as a Project-O-Chart. Such a set-up can cost much less than the \$500 for the "mechanized" equipment. Hand-operated machines, but including a Project-O-Chart, would cost only a little in excess of \$200. Still further reduction could be made without seriously impairing findings, by omitting all but the Project-O-Chart and the perimeter to test basic vision and find the faulty vision of the one-eyed driver. The test for blind spots is probably the least important of all, based on present trends of thought. So, it would be possible to cut costs of such equipment to as little as \$150 and still have the mechanically-operated chart. Change that to the old-fashioned kind and another \$100 is saved.

Although it is recommended that such equipment is best operated by an oculist or optometrist, it is pointed out that any ordinarily intelligent person with a little instruction in use of the machines and a desire to be honest and accurate can produce results.

With fleet owners testing their drivers' eyes in this way both on hiring and at regular intervals during employment, it is believed some interesting data could be accumulated that would be a valuable contribution to the problem of eyes and the driver. From this greater knowledge and education of drivers in their possible deficiencies to correct them, it is believed, many kinds of accidents can be eliminated.



Complete kits for Ford, Dodge, Chevrolet, G. M. C. and International trucks, tractors and buses. Contain every nut, bolt and screw needed, plus detailed installation instructions, same as famous Midland Vacuum brake kits. Thoroughly engineered and backed by our Factory Rebuilt Exchange Plan.

WITH BIG → 7.3 C.F. COMPRESSOR



Self lubricated 7.3 cu. ft. compressor provides the extra reserve power you need for city traffic, hilly roads or wherever brakes are needed most. Midland's fully compensating foot control valve releases any desired amount of air pressure. See your nearest Midland Distributor today—or write us direct for complete details.

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Power Brakes



The Chicago Tribune's new photo car gets the camera above the crowd in a hurry, thanks to the streamlined Bird-White tower lift. Lowered, tower forms front part of body.



Fast - Easy - Effective!

- **Fast**—because it speeds up ordering. No more wading through long lists of numbers and parts—just order the Carter Repair Package for the unit you are servicing.

Easy—because it contains essential parts to do the best job.

Effective – because you get all the parts you need and not too many.

When, after many thousands of miles of good service it is necessary to restore original performance and mileage—use the Carter Repair Package. Your Carter jobber or distributor has an ample stock.

CARTER CARBURETOR CORPORATION



2820-56 North Spring Ave., St. Louis, Mo.

Division of American Car and Foundry Company

CAR BURETER

GAGING GASOLINE

(CONTINUED FROM PAGE 23)

per cent evaporated at 158 deg. F. will have the greater tendency to give vapor lock. Vapor pressure is determined by an ASTM (American Society for Testing Materials) test, D 323-39T, in which the gasoline is placed in a specially constructed steel cylinder and the pressure is measured after the gasoline and cylinder have reached an equilibrium temperature

of 100 deg. F. It should be pointed out that refiners cannot be expected to market fuels which will perform satisfactorily in fuel systems at unnecessarily high temperatures without giving vapor lock. Manufacturers should protect all fuel lines from excessive temperatures, and, according to recently obtained unpublished data, fuel systems in many cases should be redesigned to maintain lower temperatures. Fleet operators can help themselves by keeping fuel pumps up to maximum capacity.

Most buyers prefer to purchase the standard grades of gasoline offered by refiners, although some prefer to buy gasoline on their own volatility specifications. If the buyer chooses the latter course, the spread between the maximum and minimum values for the important control points should not be so narrow that the oil refiner is asked to supply a tailor-made product at a mass production price. A combination of the 10, 50 and 90 per cent points appears to offer a satisfactory means for volatility control. Certain refiners prefer other combinations, such as, the per cent at 158 deg. F. and the 90 per cent point or the per cents at 158, 212, and 284 deg. F. and the 90 per cent point. The CFR winter and summer motor gasoline surveys, published by the Bureau of Mines, Department of Interior, are an excellent guide to the fleet operator in determining the volatility characteristics of the fuels marketed in his locality. Each operator should study the volatility and vapor pressure requirements of his equipment and select fuels best suited to his type of service.

WHICH MICHIANA FILTER DO YOU PREFER?

REPLACEABLE
CARTRIDGE
TYPE



Cat. No. 15100

RE-PACKABLE
ELEMENT
TYPE



Cat. No. 2500

OR
BOTH
ARE

Duo-Flo

At left—
to Service,
Complete
element is
replaced



At right—
to Service,
Remove used
Wastex and
pack with
new supply



with a Re-Packable filter element in which only the filtering material — Wastex — needs replacing. Each cuts oil costs — reduces engine maintenance — and provides low filter maintenance costs as well.

• Both types are built on the double depth Duo-Flo principle for thorough filtering service. Both types are selected by engineers and installed as standard equipment by truck and bus manufacturers, engine builders and on farm tractors, construction and road equipment. They are used by the tens of thousands by fleet owners.

• The No. 15100 has an easily replaceable cartridge — while the No. 2500 is furnished

• Equip a few of your vehicles now and let the "cost-reducing" results determine your further installations . . . Bulletin on request. MICHIANA PRODUCTS CORP., Michigan City, Indiana.



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Bulletin
839

MICHIANA Duo-Flo OIL FILTERS

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COMMERCIAL CAR JOURNAL
JULY, 1940

The measure of the antiknock quality of gasoline is its octane number. At present there are four methods of

(TURN TO PAGE 64, PLEASE)

LYMAN TRUCK LINES



O.K.'d
in Oklahoma



From Dallas up through the plains of Texas, Oklahoma and Arkansas . . . all the way to Kansas City . . . is really a tough run. And 835 route-miles of it daily is routine work for Lyman Truck Lines of Muskogee, Oklahoma. Here's an acid test for any brake lining . . . and here are the results in the words of F. C. Wilmoth.

"All our equipment is relined with Thermoid Brake Lining. This is because our experience shows long life and good performance. We have several long routes and we have to maintain

THIS OKLAHOMA OPERATOR
RUNS 700,000 MILES A YEAR—
Every MILE WITH
Thermoid BRAKE LINING

as fast a schedule as deemed safe. We can truthfully say that these linings help us keep these schedules on time by giving perfect brake performance."

Lyman's success with Thermoid Brake Lining is typical of the experience of leading fleet operators all over the country. Whether your route is out in the open spaces like Lyman's . . . or hemmed in tight by city traffic . . . Thermoid will do an outstanding job for you. Give it a trial on your toughest unit. Check it carefully for easy, safe stops . . . for mileage . . . for economy. You'll see the wisdom of specifying Thermoid all the time for all units !

Thermoid

CUSTOM-BUILT BRAKE LINING SETS • CBB SETS
THERMO-BLOCKS FOR HEAVIEST DUTY

* THERMOID COMPANY * Trenton, New Jersey *

(CONTINUED FROM PAGE 62)
determining octane number and they do not give similar results on the various fuels. Three of these are laboratory methods. In each case fuel is run through a standard laboratory testing engine. The differences in the three methods are the temperature of the intake mixture, the compression ratio used, the spark setting used and the speed at which the engine is operated. These three methods are known as the ASTM or Motor method, the

L-3 method and the CFR or Research Method. Research men do not agree on which is the best method but of the three the ASTM method appears to be the most popular. In heavy duty trucks and bus operation, the ASTM method has proven to be the better criterion. The measuring stick in all three methods is a bouncing pin arrangement which measures the knock.

The fourth method is to use fuel in automotive vehicles either on the road or on a chassis dynamometer

and measure the knock by ear. The limiting factor in this method is that it is impossible to test all types of vehicles under all conditions.

Until a generally recognized procedure for determining road octane values is adopted and followed, all such ratings must be accepted with a certain reserve.

Sulfur Content

All crude oils contain sulfur, some more than others. Part of the sulfur is carried through the refining operation to the gasoline. Too much sulfur is liable to corrode cylinder bores, bearing surfaces, and exhaust systems. In some cases, therefore, the refiner is forced to remove harmful quantities. The question is how much sulfur should be removed to produce a non-corrosive fuel without unduly increasing refining costs.

Except in a few cases, sulfur content has been held rigidly to a maximum of 0.1 per cent, as determined by ASTM procedure, D90-34T. At the time this limitation came into existence it was not based directly on comprehensive tests, although it did have some experimental support. However, now that jacket-water thermostats, crankcase ventilators, and, in some cases, radiator shutters have come into general use, the value of such a rigid limit on total sulfur content is questionable. In fact, tests conducted during recent years, first in California and later in other parts of the country during the winter months, have shown no harmful effects with gasolines containing up to 0.3 per cent of non-corrosive sulfur. As a result, less emphasis probably will be placed on the sulfur specification. In some states it already has been raised to 0.25 per cent. However, sulfur reduction and even complete sulfur removal may still be necessary in many instances because of the deleterious effect of some sulfur compounds on lead susceptibility. The refiner must decide to what extent the cost of sulfur removal will offset the cost of raising his gasoline to the desired antiknock rating by other means.

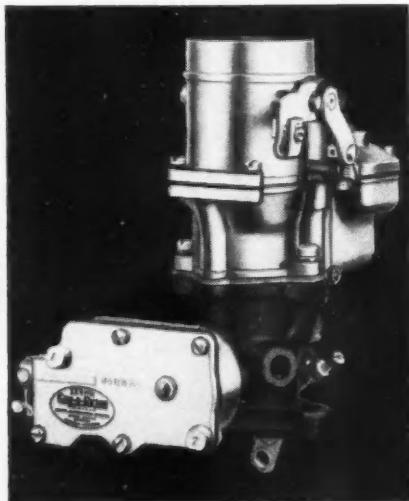
Gum Content

Gum is formed in gasoline by the oxidation of certain reactive unsaturated hydrocarbons. It is responsible for a number of operating difficulties such as sticking valves, stuck piston

(TURN TO PAGE 66, PLEASE)



COMBINING CARBURETOR AND GOVERNOR IN A SINGLE ENGINEERED, INTEGRAL UNIT

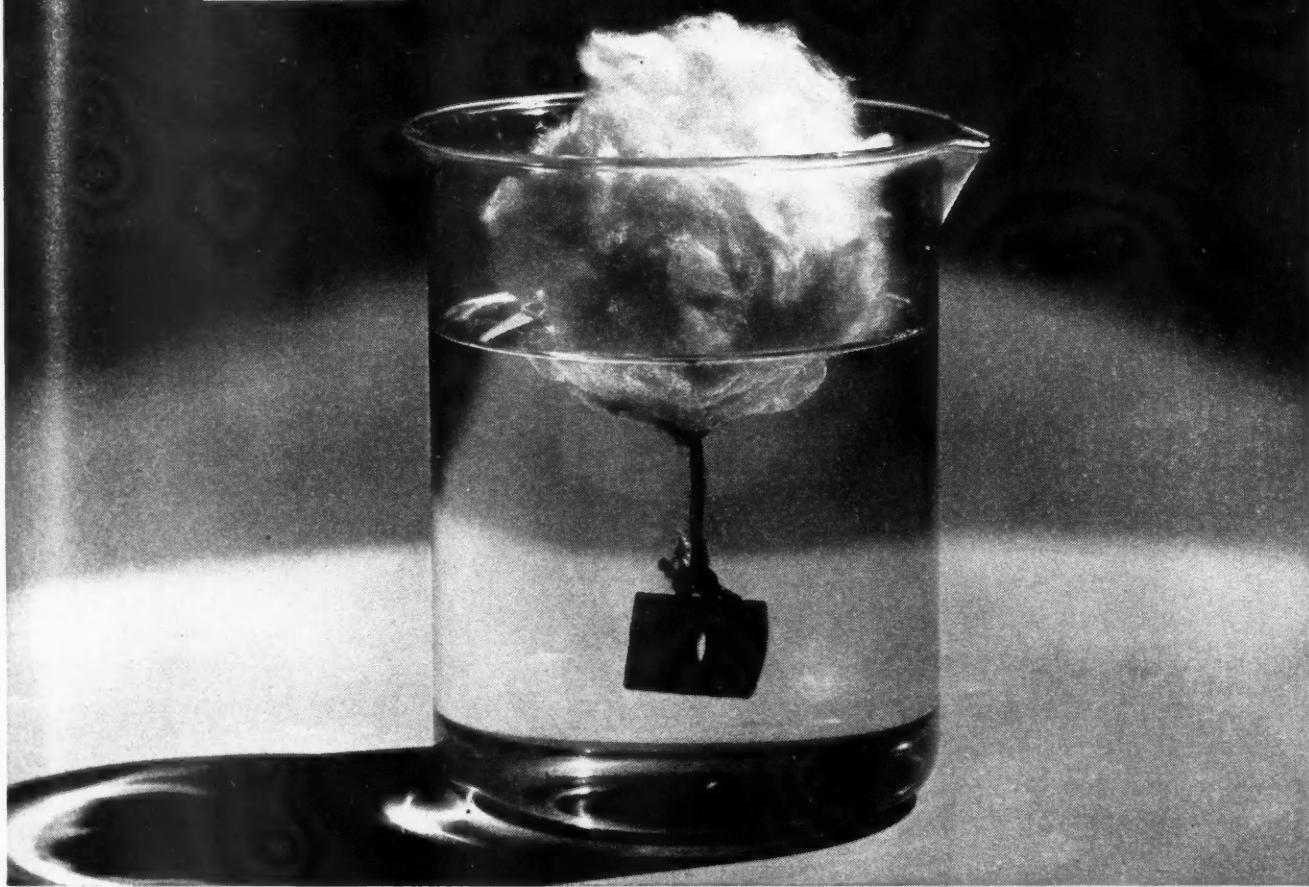


ZENITH CARBURETOR DIVISION
BENDIX AVIATION CORPORATION
696 Hart Avenue Detroit, Mich.

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COMMERCIAL CAR JOURNAL
JULY, 1940

You Can't Keep a Good Insulation Down!



Tie a weight around a piece of insulating material. Drop it in a beaker of water. Leave it there for a few days and watch to see what happens. A good insulation will remain floating on the surface without soaking up any of the water.

This moisture repellence is essential in any insulant. Without it, the insulation will blot up the drops of atmospheric water vapor that condense on the cold inner walls of the refrigerator. It will get soggy and lose its heat-stopping efficiency. Dry-Zero is naturally water repellent (non-hygroscopic). It sheds water "like a duck's back." Hence, it never loses its insulating efficiency.

Dry-Zero is ideal for truck bodies. It has a "k" factor of 0.24—the lowest of any commercial insulant. It does not rot, pack, or absorb odors. It weighs less than 2 ounces per board foot— $1/7$ as much as cork. And, in the new Bound-Batt form, Dry-Zero is less costly and much easier to install. Write, Dry-Zero Corporation, 222 N. Bank Drive, Chicago; or 60 E. 42nd St., New York.



Meat truck insulated with Dry-Zero in sides and roof. The body was built by August Vetter Sons, San Francisco.

USED IN THREE
OUT OF EVERY FOUR
INSULATED TRUCKS



DRY-ZERO INSULATION

COMMERCIAL CAR JOURNAL
JULY, 1940

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(CONTINUED FROM PAGE 64)
rings, excessive engine deposits, coating of intake manifolds, and clogging of carburetor jets. Usually, the maintenance engineer can avoid such difficulties simply by purchasing gasoline from reputable companies. Otherwise the operator must maintain rigid specifications on gum content and storage stability. By gum content is meant the non-volatile resinous material present in the gasoline at the time of test, usually termed existent, preformed or actual gum. This

type of gum is determined by a standard ASTM procedure, D 381-36, in which 50 cc. of gasoline are evaporated in a glass dish at 305 to 320 deg. F. by blowing heated air across the surface. The gummy residue is weighed, and the result is expressed as milligrams of gum per 100 cc. of gasoline. More than 7 mg. per 100 cc. is definitely objectionable, and most refiners work to a gum content well below this amount, normally 2 to 3 mg. A freshly distilled gasoline which has had no contact with air

should contain no preformed gum. If poorly fractionated, the heavy ends may leave a residue in the ASTM gum test, but this is less harmful than actual gum. Sometimes refiners or marketers add oils or other materials which, although not gums, are not sufficiently volatile to be evaporated during the standard ASTM procedure. This difficulty is overcome in certain cases by specifying a higher bath temperature of approximately 400 deg. F., but for general use, such a modification does not appear to be desirable.

The word gum is also often used when referring to what is more accurately termed potential gum, that is, gum which may be formed in the gasoline during storage. The preformed gum test gives no indication of potential gum. Instead, the potential gum-forming characteristics are indicated generally by an accelerated oxidation or aging test in which a definite quantity of gasoline is subjected to oxygen at 100 pounds pressure and a temperature of 212 deg. F. In the tentative standard ASTM procedure, a 100 cc. sample is used in a glass-lined stainless steel bomb. The length of time elapsed before the gasoline begins to absorb oxygen is taken as an indication of the gum stability of the gasoline. This is known as the induction period.

The amount of potential gum is indicated generally by the copper dish gum test. Sometimes the copper dish gum content by itself is taken as an indication of storage stability, but most experts believe it to be of value only when considered in conjunction with the induction period, a combination of low copper dish gum and high induction period insuring the greatest stability. Experts claim that copper dish gum should be kept below 25 mg. per 100 cc. of gasoline. It is claimed also that this gum figure of 25 mg. and an induction period of 300 minutes will insure a storage stability of 6 to 9 months. If an inhibitor is used, at least 180 minutes should be attributable to the inhibitor whose function is to react with the peroxides formed during oxidation and thus prevent gum formation.

With the increasing use of cracked gasolines and other potential gum-forming materials, it is believed that stricter adherence to gum tolerances will become necessary.

Save Money

Buy the Extinguisher built
to withstand service on
Trucks and Buses . . .

Pyrene

HEAVY VEHICLE TYPE

"Shock Absorber" Con-
struction Means a Longer
Life of Dependable Service

"Long Life" and "Dependable Service" are the first essentials of economy because each extinguisher on every truck must pass frequent inspection and operating tests. So, each extinguisher must be permanently good—Buy Pyrene.

The Heavy Duty Pyrene more than meets the new regulations effective Aug. 1st requiring extinguishers on all trucks and buses in interstate commerce. It is the most economical time-tested buy in the long run. Made of heavy-gauge brass with cushioned construction to withstand vibration. It is shock-proof, rattle-proof, out of the way. Liquid is anti-freezing. Save money with Pyrene.



In Stock Now at
All Quality Jobbers

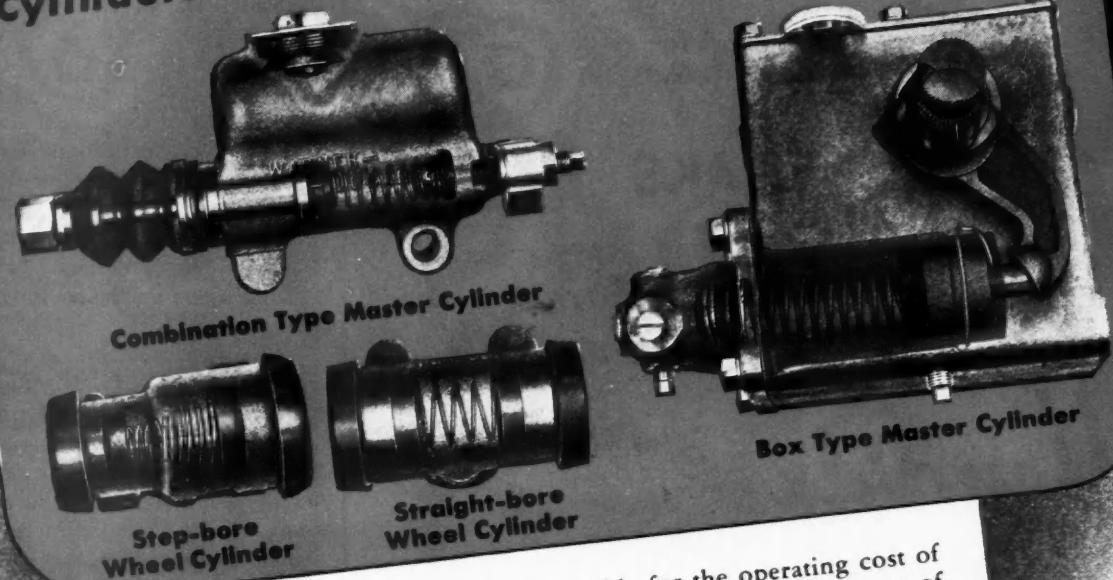


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COMMERCIAL CAR JOURNAL
JULY, 1940

Install COMPLETE CYLINDERS FOR QUICK SERVICE AND MAXIMUM SATISFACTION

Phantom Views of Wagner Completely Assembled
Cylinders... Ready to Install as Unit Packages



Fleet maintenance men responsible for the operating cost of rolling stock, will quickly recognize the many advantages of replacing worn cylinders with complete, new Wagner Lockheed Master and Wheel Cylinders.

The practice of replacing complete cylinders has received wide acceptance, and maintenance men know that better results are obtained by replacing the entire cylinder rather than replacing only the broken down parts. The remainder of the old parts, while still capable of service, are usually worn and may cause difficulty at an early date resulting in added delays and tie-ups.

Save Time and Trouble—bring the brake efficiency back to what it was when the vehicle was new by replacing the entire cylinder. Your jobber can furnish complete Wagner Lockheed Master and Wheel Cylinders—completely assembled of all new parts on the Wagner assembly line and ready to be installed.

Gentlemen: Please send complete information on Lockheed Master and Wheel Cylinders.

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FIRM _____

ADDRESS _____

CITY _____ STATE _____

MY JOBBER IS _____

CCJ

H-40-24

AUTOMOTIVE PARTS DIVISION

Wagner Electric Corporation

6400 Plymouth Avenue, Saint Louis, U.S.A.

LOCKHEED HYDRAULIC BRAKE PARTS AND FLUID

CoMaX BRAKE LINING . . . NoRoL . . . AIR BRAKES

S.A.E. PROBES FLEET PROBLEMS

(CONTINUED FROM PAGE 21)

cially in engines subject to numerous cold starts."

J. F. Winchester, the well-known fleetman connected with Standard Oil of New Jersey, commented that Mr. Templin in his paper seemed to dismiss lightly the quality and type of fuels and lubricants. "But they may affect to a great degree the variations

in mileages recorded," he said. "We get 50,000 to 60,000 miles before ring changes in cars and light trucks. In heavy-duty trucks we get about 60,000 miles. The mileages reported by Mr. Templin seem to be typical of those of 10 years ago."

T. C. Smith, of American Telephone & Telegraph Co., spoke up for additives with the statement that "our tests of additive agents show that they do reduce wear materially."

The danger of mixing additives

was voiced by O. A. Axelson, of Columbia Engineering Corp.

"The additives used in different brands of oils," he said, "apparently do not mix. As a result, when two different oils are used in a crankcase, a condition arises which is unfavorable."

Dr. Bray admitted that all additives do not mix. He recommended that fleets choose one oil that does a good job and stick to it. If several oils are used, he advised getting assurance from the several refiners that the additives are compatible.

Referring to Mr. Templin's endorsement of oil filters as a longevity factor, H. O. Mathews, of Public Utility Engineering & Service Corp., croached on difficulty:

"We have found," he said, "that filters are useless in low-mileage, cold-motor operation unless some means are used to raise the temperature of the oil before it enters the filter. Oil is cheaper than piston rings," he observed, "and maybe some rings are being replaced ahead of time."

George A. Round, of Socony-Vacuum Oil Co., confirmed Mr. Mathews' remarks regarding stop-and-go service.

"In such service," Mr. Round said, "the engines become messy because of the sooty condition produced by cold engine operation. I know of one fleet that solved the problem by putting a half-inch copper tube through the exhaust manifold and forced the oil to circulate through it. This got the temperature up and kept away sludge formation."

Mr. Round then pointed out that some filters present a problem in connection with the use of additives.

"Additives are coming into greater use in gasoline engines," he declared. "However, some filters take the additives out of the oil and there's no point in having oil with additives if filters remove their effectiveness."

Chassis Lubrication

"Improvements Needed in Chassis Lubrication" was the subject assigned to Jean Ray, of the Virginia Electric & Power Co. Mr. Ray made a study of chassis lubrication and confessed that he couldn't get excited about it.

"Of course," he said, "there is room for improvement, and there always will be. It is true that on (TURN TO PAGE 70, PLEASE)

**Stop
SPRING SQUEAKS
AND GROANS**

Hendrix

ALL-STEEL SCREW TYPE



**SPRING SHACKLE BOLT AND BUSHING
for all FORD TRUCKS
and PASSENGER CARS including MERCURY 8**

• LONG LIFE—The scientific all-steel HENDRIX design ends the need for frequent replacements usually found in connection with rubber or "composition" shackles.

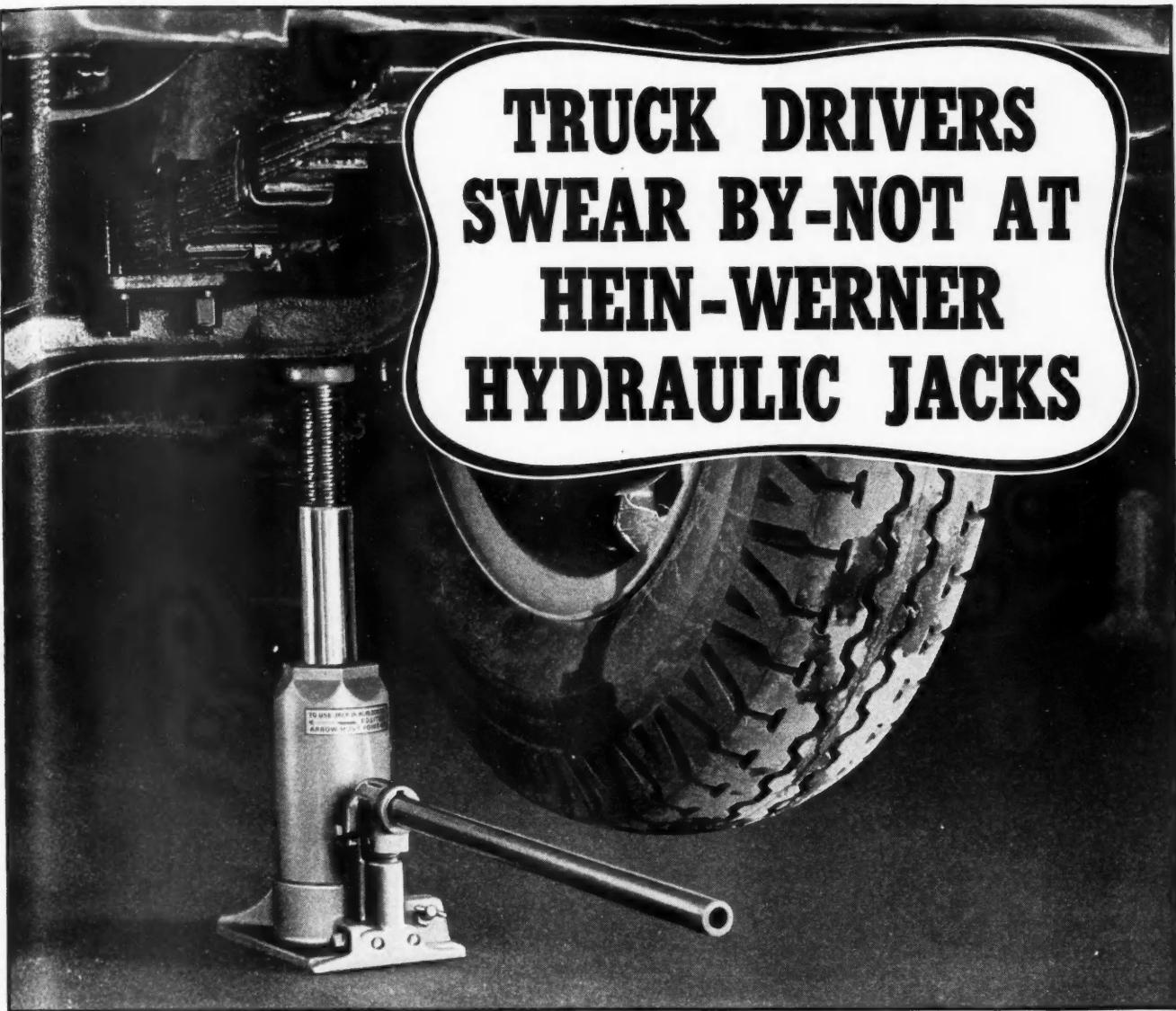
• EASY LUBRICATION—Lubricant, applied through standard Alemite fitting, is forced throughout entire shackle assembly.

• INEXPENSIVE—Due to extremely long life HENDRIX Shackles are a splendid investment, as they outwear other types many times over. Same diameter and length as original studs . . . simply drive out the old and replace with HENDRIX.

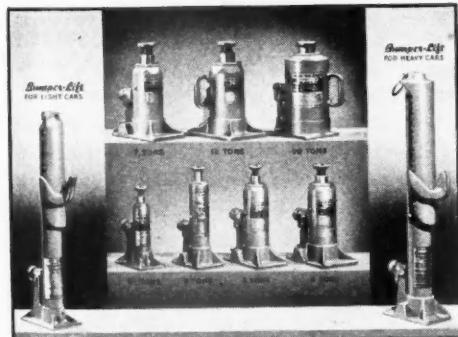
Write for complete information and prices.

SERVICE SPRING COMPANY
Makers of GENUINE SERVICE-INDIANAPOLIS SPRINGS
INDIANAPOLIS, INDIANA, U.S.A.

TRUCK DRIVERS
SWEAR BY-NOT AT
HEIN-WERNER
HYDRAULIC JACKS



**LOOK AHEAD--equip each of YOUR trucks with one of
these safe, fast, easy operating H-W Hydraulic Jacks**



Hot summer days are plenty tough on tires. And if **YOU** have ever attempted to raise a truck to change a tire, and if you did not have a dependable, easy-operating jack, such as a Hein-Werner—*you know* that it pays to have a good jack handy when one is needed.

Think of your men—and equip your trucks with H-W Jacks **NOW**. These easy-operating hydraulic jacks set the standard for comparison, and are the logical preference of thousands of drivers. "Bullet" model, 1½ tons capacity is only \$2.80 . . . 2 ton Light Truck Special is \$2.95 . . . 3 ton models, \$6.95 . . . 5 tons, \$8.95 . . . 8 tons, \$11.75 . . . 12 tons, \$17.50 . . . 20 tons, \$30.00 (West Coast prices are slightly higher) . . . Hein-Werner also makes the **WHITE SADDLE LINE OF HYDRAULIC SERVICE JACKS** for shop use on jobs up to and including 4 tons.

Ask your jobber for latest prices and details on complete line. Also ask about the new **SAFE-T's**, 5 and 10 tons capacity.

FEW MODELS ENGINEERED TO DO THE WORK OF MANY
HEIN-WERNER
hydraulic JACKS

HEIN-WERNER MOTOR PARTS CORP.
WAUKESHA, WISCONSIN

(CONTINUED FROM PAGE 68) some chassis certain grease fittings as well as other accessories that require attention are so cleverly concealed as to escape detection until the failure of the part for lack of lubrication discloses their presence, while others require the services of a contortionist to minister to their needs. This condition might be improved by having the layout man get underneath the chassis and try to get some grease in fittings that look all right on the blue-print. "Perhaps what the

fleet operator really needs is modern lubricating equipment in his garage. It is going to be hard to throw away some of the outfits that are 10 and 12 years old but when consideration is given to the saving in time, increased efficiency and cleanliness of modern lubrication equipment, the cost of the change is justified."

Several national account men conceded in the discussion that fittings sometimes are hard to get at.

"Design engineers will sometimes shortcut because they are not versed

in practical operation," declared Charles H. Wondries, of Studebaker Corp. "When you have any troubles, tell us what they are and we will try to take care of them."

Herbert Happersberg, of Brockway Motor Co., admitted that the mounting of special equipment, such as auxiliary tanks, pumps, etc., especially on short wheelbase tractors and cab-over-engine models frequently led to inaccessibility of fittings which the truck designer could not control.

Appearance Maintenance

The problem of maintaining the appearance of motor vehicles was sketched briefly by Leo Huff, manager of motor transportation for The Pure Oil Co.

"A well-painted, well-groomed motor vehicle is a good advertisement, often referred to as a moving billboard," Mr. Huff said. "However, I feel that oftentimes we go a little too far in the original painting of the vehicle. We must consider not only the cost of painting that is involved but also the out-of-service time of the vehicle. Twenty-five years ago it required three weeks to thoroughly clean and paint a tank truck. Spray-painting and synthetic quick-drying materials have reduced the time materially. Today, in using the priming sanding surfacer first coat and second coat finishing, including the lettering or application of decalcomanias, our paint process has been reduced to a 5-day operation. I still feel that even this is too long for the benefit that we derive from the paint job, especially when we consider the poor average care that is given this paint job after the vehicle is put in service, by the driver or the employee whose duty it is to wash and clean it."

"I am of the opinion that we can present a satisfactory looking vehicle by the use of a much quicker system, such as in use today by many companies. This system requires only a thorough cleaning, then application of a light mist coat of color, followed by a heavy coat of color and the application of decals. This covers the repainting only. When new material is to be painted, one coat of prime is necessary. Under this system a vehicle is out of service only two days."

Mr. Huff advocated more care being taken in the cleaning of vehicles to get the most out of the paint job.

(TURN TO PAGE 72, PLEASE)



A "STERLING" STANDARD. Naugahyde's heavy-duty wear matches famous STERLING truck performance. The makers of STERLING trucks use only one composition-upholstery —

Genuine
U. S. NAUGAHYDE
The Low-Cost, Heavy-Duty Seat-Covering



COATED FABRICS DIVISION
UNITED STATES RUBBER COMPANY
MISHAWAKA, INDIANA



"... We're hauling bigger payloads with important savings in trip-time, fuel and maintenance expense"

... UNITED NEWS COMPANY, PHILADELPHIA

OVER DAILY ROUTES, hundreds of miles long, United News Company of Philadelphia, distributes 9,000,000 copies of 500 different magazines and newspapers every month.

To maintain its exacting "deadline" schedules . . . United News has 36 Whites now in its fleet, including repeat orders placed since the first White Super Power Truck went into this strenuous service 23 months ago.

When the chassis weight saving, allowing an extra 1,000 lbs. of payload, became apparent, United News changed its body construction and now carries about 2,000 lbs. more payload on each White Super Power Truck.

Gas mileages, with 6½-ton payloads, run as high as 9 miles to the gallon. Trip-time . . . the most important factor in the operation . . . has been reduced, due to better performance on hills and in traffic, with no increase in top speed.

No wonder United News says, "White Super Power has opened our eyes!"



**GET A
DEMONSTRATION**

... in your own service with your own driver at the wheel. Phone your local White Branch or Dealer or write

THE WHITE MOTOR COMPANY
Cleveland

SUPER White POWER

White.. FOR 40 YEARS THE GREATEST NAME IN TRUCKS

(CONTINUED FROM PAGE 70)

He concluded: "I feel that more consideration should be given to the proper housing of motor vehicles, to the installation of power washing machines, and to the use of non-injurious materials for washing."

The discussion developed viewpoints on decals versus vitreous enamel signs.

W. A. Taussig, of Burlington Transportation Co., came out for the enamel signs. Originally they were used on buses. He said they cost

twice as much as decals and weigh a bit. Knowing that the signs can be damaged by flying stones or by careless use of hammers by mechanics, he provided himself with some spares. In the year that the signs have been in use he has not had occasion to call for a spare. One swipe of a cloth restores the sign's brilliance. He confided that the use of enamel signs was being extended to his trucks.

T. L. Preble, supervisor of automotive transportation, Tide Water

Associated Oil Co., supported the use of enamel signs.

"We have been using them for four years," he said. "They live forever unless hit by something."

F. K. Glynn, of American Telephone & Telegraph Co., conceded the virtues of enamel signs but said he felt that decals look somewhat better on the side of a truck.

Preventive Maintenance

"Establishing Preventive Maintenance Periods in Fleet Operations" was covered in a paper presented by Mr. Taussig, of Burlington Transportation Co., which operates both trucks and buses. The paper is presented in full elsewhere in this issue. An important point emphasized by Mr. Taussig was that records of failures of various parts should be carefully kept so that changes in preventive maintenance periods might be made in conformity with those records.

Merrill C. Horine, of the Mack company, said there was a constant need for more information on the life of parts in a truck.

"There is a great need," he said, "to bring the service life of various parts more nearly in line with one another so that we may approach the case of the Deacon and his wonderful one-hoss shay."

Mr. Preble declared that the preventive maintenance practices of fleet operators would be greatly helped if manufacturers would feed them more facts on wear tolerance for all parts.

Trends in Fuels

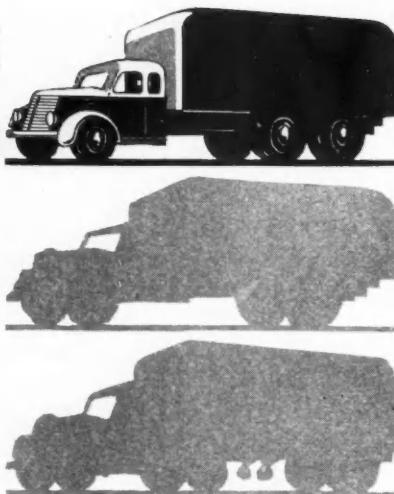
In his presentation on fuels, portions of which are reproduced elsewhere in this issue, William H. Hubner, of Ethyl Gasoline Corp., itemized some definite trends. He said:

"The trend in antiknock value is definitely upward. By 1945, road octane values may reach a level of 95 for premium grade and 85 to 90 for regular grade fuels. The increase will be gradual. The development of better engines and better fuels will go hand in hand as the result of closer co-operation between the automotive engineer and the refinery technologist."

"Volatility apparently has reached a leveling off point, although the trend is toward more volatile fuels. Sulfur content is becoming less important from the standpoint of corrosion, but still will be kept at a mini-

(TURN TO PAGE 74, PLEASE)

Six-Wheelers cost less to operate



If you're in business for profit (and who isn't), it will pay you to consider the opportunity for reducing your operating costs offered by six-wheel trucks. Cutting cost, of course, is one way to make a profit.

Six-wheelers cost less to operate than other types of hauling units because:

1. Under the laws of most states, they enable owners to carry heavier payloads than by any other trucking method.
2. Requiring no heavy fifth wheel structure, landing gear, and extra length of frame, they carry much less dead weight.
3. They last longer because they develop less impact on the highway.
4. They take substantially lower rates in liability and property damage insurance.

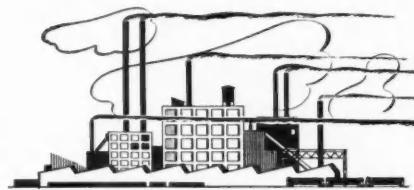
Trucktor Third Axle Units are engineered for all makes of trucks and practically all trucks are engineered for Trucktor. No change of design nor radical refabrication are necessary in installing the Trucktor Third Axle.

Send for further information and let us tell you how you can move more payload per dollar with Trucktored Six-Wheelers.

See our exhibit in the Communications Area at the New York World's Fair.

THE TRUCKTOR CORPORATION
156 Wilson Avenue Newark, N. J.

Trucktor



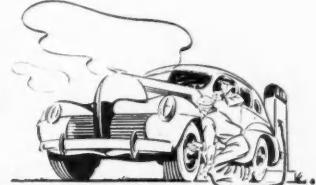
Men who make tires know that the use of air-tight tire valve caps saves dollars in additional tire mileage and hours of roadside delay.



Men who prove tires know that the use of air-tight tire valve caps saves dollars in additional tire mileage and hours of roadside delay.



Men who sell tires know that the use of air-tight tire valve caps saves dollars in additional tire mileage and hours of roadside delay.



Men who service tires know that the use of air-tight tire valve caps saves dollars in additional tire mileage and hours of roadside delay.

Men who use tires know that the use of air-tight tire valve caps saves dollars in additional tire mileage and hours of roadside delay.



A. SCHRADER'S SON Division of Scovill Manufacturing Company, Incorporated **BROOKLYN, NEW YORK**

(CONTINUED FROM PAGE 72)
mum by the cost factor in producing higher antiknock fuels. Low gum content and good storage stability still remain essential attributes of a good gasoline.

"The need for antiknock compounds may be strictly economic or it may be the means of maintaining uniform quality which is so necessary for satisfactory customer acceptance."

Mr. Hubner quoted predictions that design of future engines would be in the direction of units of smaller

size, with higher compression ratios, yielding higher power output, and requiring motor fuels of higher antiknock properties.

"Increase in compression ratio," he said, "is only one of the methods by which engines may utilize fuels of higher antiknock value. There is a good chance that the future may also see superchargers used extensively in automotive design."

More Power Per Unit of Weight

Anticipating the time when better

performance will be mandatory for a goodly number of motor truck models, Austin M. Wolf, consulting engineer, reviewed in comprehensive fashion the various methods whereby more power can be made available per unit of gross weight.

"Broadly, there are only three avenues of approach," Mr. Wolf said. "They are: (1) increased power; (2) the conservation of power already developed by the engine, and (3) decreased tare weight."

He discussed each of those avenues in turn and voiced the conviction that our designing ability, research efforts and ingenuity would provide an economical solution.

(Ed. Note—We hope to present details of Mr. Wolf's paper in a future issue.)

Crankcase Oils

In a rather technical paper dealing with the use of small-scale single-cylinder engines for the evaluation of motor oils, A. O. Willey and C. F. Prutton, consultants, The Lubri-Zol Corp., made some non-technical observations of definite interest to fleetmen, to wit:

"The question often arises as to the relative quality of oils from the various sources of crude. In the past, there have been trends indicating that oils derived from a certain type of crude are superior to those derived from other fields, for a given purpose. It would appear that recent developments in the art of refining lubricating oils may have upset the reliability of such conclusions. Results seem to show that oils which have remarkably good characteristics for certain types of service may now be derived from almost any source. For example, it has been shown by many tests that certain oils derived from Pennsylvania Crude and from Mid-Continent Crude have excellent anti-varnish forming properties, and that other oils from each of those crudes have decided varnish-forming tendencies. Drain sample analyses confirm the fact that the source of the oil alone is not sufficient information to appraise its service characteristics."

Other interesting observations on crankcase oil were made by C. M. Larson, chief consulting engineer, Sinclair Refining Co., in his paper, "Severe Duty Engine Conditions as

(TURN TO PAGE 76, PLEASE)

NOW: I.C.C. DEMANDS FIRE EXTINGUISHERS



Effective August 1, 1940, all PRIVATE Carriers, engaged in Interstate Commerce, as well as all Common and Contract Carriers must carry at least one fire extinguisher of a type approved by the I.C.C.

The new 1940 Heavy Duty S. O. S. FIRE GUARD one-quart extinguisher meets all I.C.C. requirements.

Check These 12 Important Features Found Only In Fire Guard

- 1 Safety Phlare Pump Cylinder.
- 2 Non-Seizing Dual Cam, Handle Lock (Also Panic Proof).
- 3 Heavy nitrite brass forged cap.
- 4 Heavy stainless steel spring, cam operated plunger rod sealing arrangement.
- 5 All Monel pump check balls at both top and bottom of pump.
- 6 Non-binding plunger rod packing box assembly.
- 7 Non-puncturing discharge tube seal.
- 8 Only one soldered joint inside of extinguisher (this joint is so small you can hardly find it).
- 9 Plunger rod not weakened by threading to attach handle.
- 10 Bracket holds extinguisher securely in place yet it can be removed without a hard jerk or pull.
- 11 Bracket provided with means that prevents extinguisher turning around or rattling.
- 12 Bracket, for added safety, provided with screw holes in the bottom supporting cup.

Because of its unusual construction features—notably, "Safety Phlare" and exclusive two-year guarantee—transportation companies, major oil companies, aircraft manufacturers, and the United States Government are large purchasers of FIRE GUARD.

You must comply with the new I.C.C. ruling by August 1, 1940

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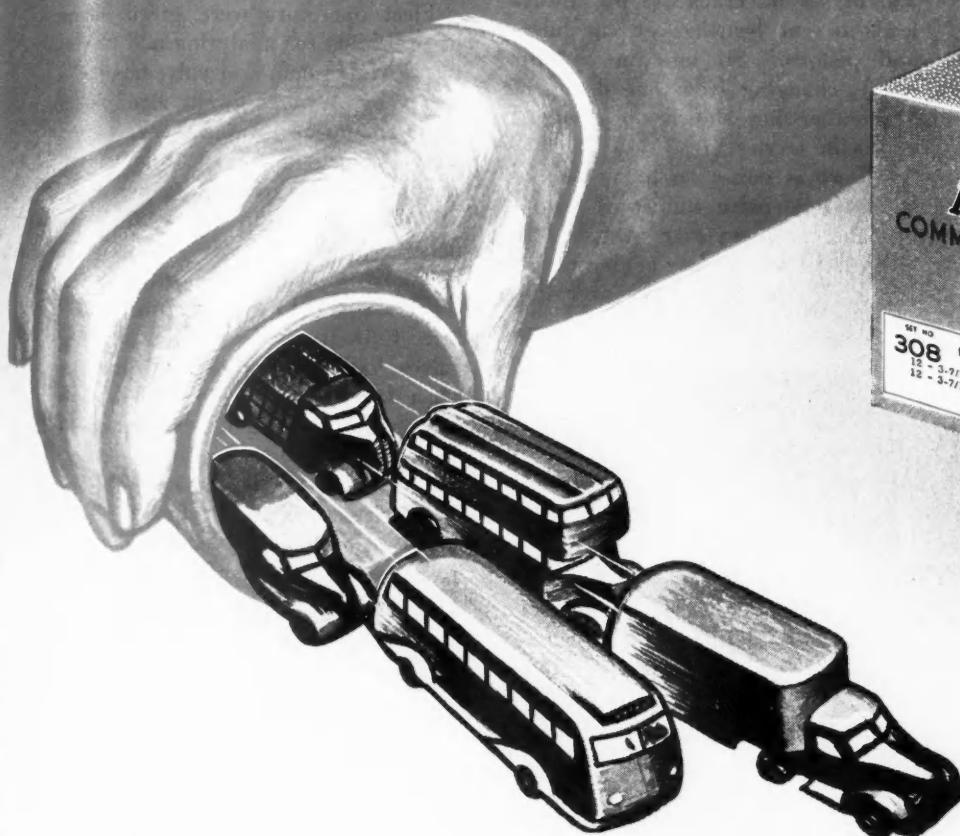
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The odds are always all in your favor when you rely on A-H Matched Sets for piston ring replacements on your commercial units. They're "naturals" because each A-H Matched Set is specifically designed for a particular engine.

From the moment the pistons are pulled, A-H Matched Sets begin to roll up savings. Each set contains exactly the right number and right combination of individual rings for the job in hand. They go on . . . and they go into operation with a minimum of effort and trouble because they are precisely engineered to fit the particular engine.

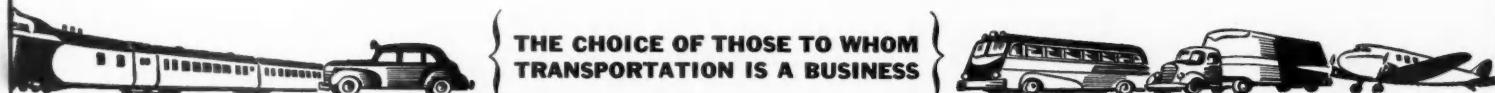
When the unit rolls out of your shop and the driver steps on the gas, he'll find it packed with power . . . and as

responsive as the day it came from the manufacturer's. But even more important will be the record that A-H Matched Sets will trace across your account books. You'll find your A-H equipped units staying on schedule more regularly . . . and you'll find a very tangible drop in operating costs.

So we say this. Pick your toughest unit and treat it to the proper A-H Matched Piston Ring Set. We're entirely willing to let this one A-H Matched Set do the rest of our selling for us.

KOPPERS COMPANY
American Hammered Piston Ring Division
Baltimore, Maryland

{ THE CHOICE OF THOSE TO WHOM
TRANSPORTATION IS A BUSINESS }



American Hammered Piston Rings

a K O P P E R S *product*

(CONTINUED FROM PAGE 74)
Related to Oil and Fuel":

"Used oil analyses are not always definitely related to the condition of the engine, for it is possible to have a very bad used oil analysis with a clean engine, and it is also possible to have a good used oil analysis with a dirty engine.

"SAE 30 oils are much more stable against oxidation than the SAE 10 and 20 oils of the same crude and refinery treatment.

"The use of oils with detergents in

engines which have piston land and ring groove deposits, without frequent draining periods of the first and/or second crankcase fill, always leads to cut bearings or cut liners and pistons. So far (in Sinclair tests), changing from one detergent to another has shown no chemical effects in service.

"There is going on today one of the most intensive studies of the oil and fuel problem ever witnessed in the field of severe duty engine conditions. In the year 1939 over 200

patents were issued for addition agents for oils and fuels."

Valve Deposits

Fleet operators were given some helpful hints for analyzing and cleaning up valve-stem and valve-head deposits by A. T. Colwell, vice president, Thompson Products, Inc. Valve-stem deposits, he said, today were causing conservatively 50 per cent of valve trouble in the automotive field.

"The color of the deposit is some check on the operating condition," Mr. Colwell said. "Cool-running valves have a dark deposit, that is often found in house-to-house delivery service. Medium valve temperature has a deposit varying in color from grayish to light brown, chalky in consistency and not fused. Yellowish color indicates lead oxide and a somewhat higher temperature. Reddish brown is the color of high-temperature operation, usually accompanied by fusing on the stem and head. Very black head deposits, particularly when flaky, indicate excessive temperature and probably detonation or pre-ignition.

"A complete solution of the build-up problem is most difficult, due to the fact that any oil will oxidize or decompose at some temperature found along the valve stem. Oils with good oxidation resistance at high temperature cause the least trouble — this has been definitely proven."

The solution of the problem is largely one of design, but Mr. Colwell offered some service suggestions which he gathered, as follows:

"Keep guide clearance near that recommended at the factory, particularly replacement guides which are bell-mouthed.

"Solvents may be used to flush valve stems. The best solvent is apparently one which dissolves the binder in the deposit.

"Keeping oil filters clean and functioning properly definitely reduces deposits on valves.

"In a number of cases of valve sticking in the field graphited guides were installed and these guides cut flush with the boss. The graphited guides decreased sticking troubles.

"Crankcase cleanliness, preventive maintenance, removing bell-mouthed guides, and attention to the quality of oil and fuel used do much to reduce deposits on valves," Mr. Colwell concluded.



... it's a JOYCE Two-Post Lift. Lucky indeed are the men who have a Joyce Lift to help them keep the fleet rolling. They have a big and important job, and their Lift is their biggest and most important piece of service equipment. And only with Joyce Lifts can you secure these very important money-saving and time-saving advantages:

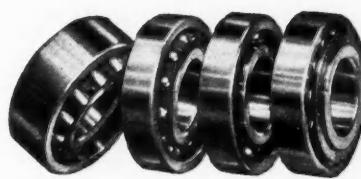
- 1—Flush type installation. Smooth floor to drive over when Lift is down; smooth and safe to walk over when Lift is raised.
- 2—No time is lost spotting vehicle over a Joyce Lift. Unlike most railless lifts, no adjustment of piston is necessary.
- 3—The Lift raises or lowers instantly by either direct or remote control, powered by either your air compressor or a Joyce current-saving Electric Pumping Unit.
- 4—In "up" position, Joyce Lifts give a maximum of head-room and elbow-room. Nothing to interfere with dropping pancake engines, drive shafts or transmissions. Easy to make quick inspections of underbody mechanism or remove wheels and tires.
- 5—Double safety for operator. Lift is locked on oil plus foot-operated safety lock at floor level.

Joyce makes the world's most complete line of Bus and Truck Lifts. There's a size and type for your particular requirements. Be fully informed . . . send for Catalog No. 158.

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AN Autocar TRUCK

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Model UB-106" wheelbase truck,
built by The Autocar Company
for Morton Salt Co



SKF
Puts the
Right Bearing
in the
Right Place

MORTON'S got something in the slogan, "When it rains, it pours". Not only is it true of salt, but of bearing trouble as well. When a bearing falls down on the job, one thing leads to another, and bills start pouring in. You'll get what we mean when ordinary bearings send your truck to the repair shop, and you pay overtime to mechanics to get the job back on the road earning money.

You don't have bearing trouble to contend with in this truck. Autocar avoided *that* when they installed **SKF** Bearings. Instead, you have bearings with *sturdiness* resulting from high-grade steel hardened throughout. You have *reliability* that comes from careful attention to the most minute details. You have a truck that's on the road working for you every minute.

From border to border and coast to coast, replacement is a simple matter because more than 6000 types and sizes of **SKF** Bearings are available at convenient sources of supply.

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SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA., PA.

SKF
BALL & ROLLER BEARINGS

SETTING UP P.M. PERIODS

(CONTINUED FROM PAGE 27)

- (2) Study road failure reports after operating on these mileages.
- (3) Determine if certain expensive parts have been destroyed by too infrequent replacement of inexpensive parts. The cost of parts should be computed on the basis of F.O.B. in place on the vehicle, that is, it

should include the labor cost of installation.

- (4) If the cost of handling road failures and the estimated cost of service interruptions appear excessive, decrease the mileage interval for servicing the units at fault.
- (5) If expensive parts are prematurely rendered unfit for service by failure of inexpensive parts, decrease the replacement period for the inexpensive parts.

- (6) If very few or no failures exist on certain units, lengthen the period on a few vehicles in the fleet and if this is successful, change the entire fleet to the extended period. It is to be assumed that extreme caution will be exercised in extending periods on those parts of the vehicle that involve human safety.

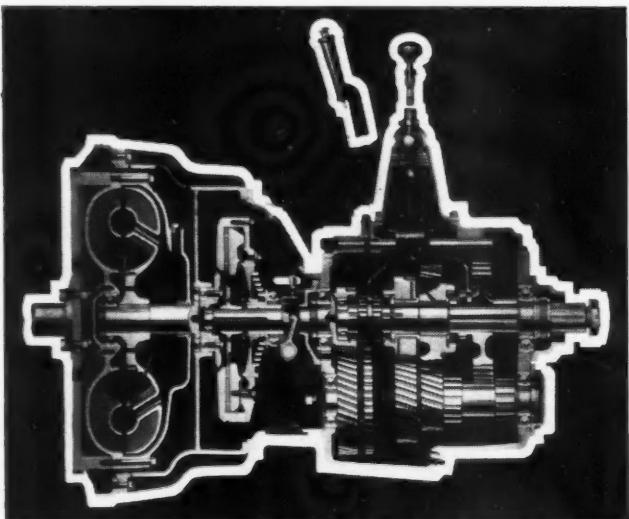
In other words, the establishing of proper periods for preventive maintenance requires constant study for advantageous changes and must, at best, be largely based on "Cut and Try" methods backed up by adequate experience records. Certain patented devices for detecting sub-surface failures before complete failure occurs are extremely beneficial in extending replacement periods with minimum risk. The cost of these devices or services, at present, is beyond the allowable expenditure of many fleet operators.

The following experiences will illustrate changes in preventive maintenance periods. New gasoline engine powered buses of a certain make and model were purchased in 1934 and additional units of the same model subsequently. It was decided that these engines should be completely overhauled at 50,000 mile intervals. After several engines had been rebuilt, examination disclosed that it would be sufficient to install new piston rings, grind valves, inspect engine bearings and replace timing chains at the 50,000 mile period but to defer general overhaul to 100,000 miles. This practice was continued until the Fall of 1937. At that time, we were persuaded to undertake tests of a higher priced lubricant with the promise that wear on major engine parts would be reduced at least one-third and consequently Preventive Maintenance periods could be extended 50 per cent. It was decided to test five engines on the new oil and five engines on the old type of oil, taking detailed measurements of engine parts before tests started and again at overhaul periods. We were reluctant to immediately decide to lengthen the overhaul period to 150,000 miles but we did agree to run the first engine 125,000 miles. No failure occurred and consequently the second and then the other eight engines were run 150,000 miles each, with success-

(TURN TO PAGE 80, PLEASE)

The HYDRAULIC COUPLING and Standard FULLER Transmission

in
Heavy
Duty
Truck
Service



The hydraulic coupling as developed by The American Blower Corporation and the standard Fuller transmission in heavy-duty truck service has been tested and proved by actual operation in hauling heavy loads of iron ore out of open pit mines on the Minnesota iron ranges.

Fuller has simplified installation by providing an adaptor between the engine and the standard Fuller transmission to house the hydraulic coupling. Check these installation features:

1. Standard engine flywheel housing.
2. Standard friction clutch.
3. Standard transmission and clutch housing.

The use of the hydraulic coupling provides entirely new heavy-duty truck operating characteristics. Check these features:

1. Dampens out engine periodic vibrations at all engine speeds and cushions shock loading in the drive line.
2. Engine cannot be stalled by wheel resistance.

3. Makes possible the starting of a load on an upgrade in the highest transmission ratio that could ordinarily be used without a loss of truck speed to negotiate the same grade.

4. The friction clutch can be fully engaged at any and all engine speeds before accelerating the engine which will increase indefinitely the life of clutch facings.

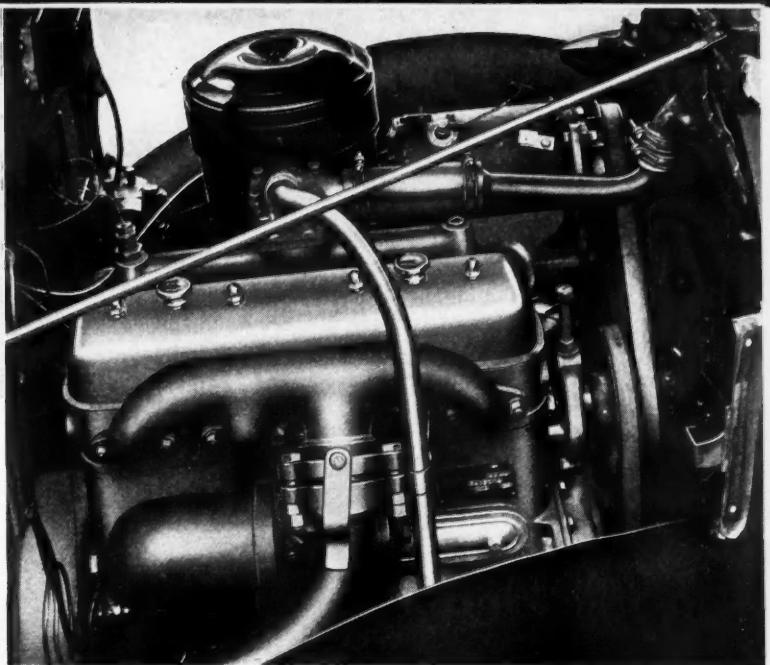
5. Less gear shifting required by operator which reduces driver fatigue.

***NOTE:** (Explanation of item 3). If sufficient resistance is applied to the coupling output shaft to bring the R.P.M. of this output shaft down to or below the engine maximum torque R.P.M., the engine (under full throttle) will continue to operate at the max. torque R.P.M. Since the coupling output torque is always equal to the input torque, the maximum torque which can be developed by the engine will be delivered to the output shaft. Consequently any transmission ratio which provides sufficient reduction to negotiate a grade without loss of road speed can be used in conjunction with the coupling to start and negotiate the same grade.

Write for illustrated pamphlet which describes the combinations of Fuller Transmissions and Hydraulic Couplings.

FULLER MFG. CO., Kalamazoo, Mich.

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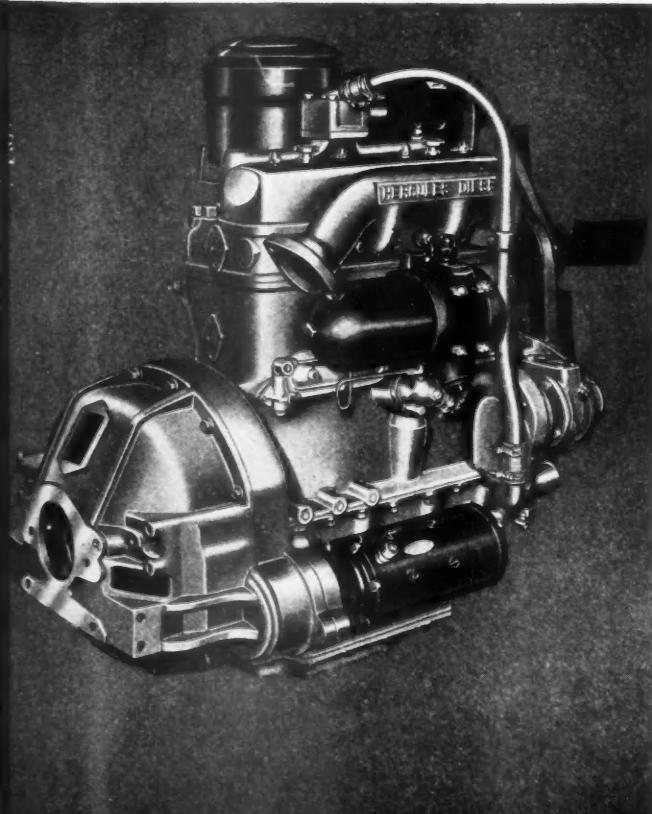


HERCULES DIESEL

Replacement Engines.

FOR 1940 CONVENTIONAL MODEL

CHEVROLET TRUCKS



DEPENDABLE power—and sensational savings in fuel costs. Performance-proven Hercules Diesel Engines, completely engineered for the 1940 Conventional Model Chevrolet Truck, are now available in two sizes—Model DOOC, 4" x 4½" and Model DOOD, 4½" x 4½". These smooth-running Diesels are easy to install and easy to operate. Of characteristic Hercules Diesel design, they are built right for amazingly low-cost operation in heavy-duty service.

If your trucks average 50,000 miles per year or more, write today for full information regarding these fully-proven Hercules Diesel Replacement Engines for the 1940 Chevrolet Truck.

HERCULES MOTORS CORPORATION
170 11th STREET, S.E. CANTON, OHIO, U.S.A.

(CONTINUED FROM PAGE 78)
ful results on either of the lubricants. It was therefore decided to change the entire fleet of this model to replacement of rings and valve grinding at 75,000 miles and complete overhaul at 150,000 miles. Last summer, the overhaul period was again advanced to 200,000 miles; but, due to several valve and piston ring failures, the re-ringing and valve grinding period was set back to 50,000 miles. Improvement in the manufacture of timing chains permitted increasing

the replacement period to 100,000 miles on this item. Present study of road failures on this model of engine leads me to believe that it might be advisable to again cut back to 150,000 miles overhaul periods.

It can be seen from this illustration, that the maintenance supervisor is constantly obliged to weigh the possible economy of extending Preventive Maintenance periods against the cost of handling more failures and the risk of more frequent service interruptions.

When a new model of engine or vehicle appears on the market, setting up mileages is extremely difficult. Neither operator nor manufacturer has the necessary background of experience. The best that can be done is to try out the periods established for older models that the new vehicle most closely resembles.

The periods established for a certain gasoline engine were tried out by our company in servicing a new model of diesel. The results were not satisfactory. After struggling through a period during which influencing factors were rapidly changing, forms were recently drawn up. The fact that they are mimeographed rather than printed and that they are incomplete, clearly indicates our lack of faith in their permanence. Whether or not we will be using the same forms one year from now, I would hesitate to predict, but I would hazard a guess that if we have not changed them in that length of time, we will be guilty of inattention to the job and of faulty management.

While engines have been given as examples, similar experiences have been found in other units of vehicles.

There has yet to be devised a suitable substitute for careful physical inspection and sound mechanical judgment in well supervised fleet operation. Preventive Maintenance is a guide which guards against the neglect of certain vehicles or parts of vehicles. The constant study of failures and the manipulation of Preventive Maintenance periods brings out the best of initiative and skill in the mechanical departments. Establishing proper preventive maintenance periods in fleet operations is a task which is never completed.

STEWART-WARNER ELECTRIC FUEL PUMP PREVENTS THIS...

**Built by the
Pioneers of Fuel Delivery Systems**

This Model 110-D Stewart-Warner Electric Fuel Pump is backed by 25 years' experience in the manufacture of fuel delivery systems, and is, we believe, the finest fuel pump yet offered. Bears full approval of Underwriters' Laboratories, Inc.

No more vapor-lock troubles! Trucks equipped with Stewart-Warner Electric Fuel Pumps just naturally don't have 'em! Mounted back at the fuel supply tank, *away from the heat of the motor*, this pump pushes fuel up to the carburetor under pressure—completely and permanently eliminating the usual cause of vapor-lock.

It's fool-proof! It's trouble-free! Contact points are sealed in a hydrogen-filled glass tube, so there can be no sticking, pitting, or burning of points. The new Stewart-Warner Electric Fuel Pump delivers 15 gallons per hour on less than 1 ampere of current! *There is no piston, and no rotating action.* Consequently wear is minimized, resulting in long life for the pump.

Let this amazing pump help keep your trucks rolling—help you cut down road calls and expensive schedule interruptions. You'll find it actually reduces operation and maintenance costs, too! Mail coupon today for complete information!

STEWART WARNER ELECTRIC FUEL PUMP

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Please send complete facts about the new Stewart-Warner Electric Fuel Pump for trucks.

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Proponents of bulk cement hauling will be interested in this job by Universal Trailer Co., Detroit. It holds 90 barrels and an air-cooled motor at front of body operates spiral screws to discharge dust-free cement through chute at rear at a rate of 5 gallons per minute.

THEY DRIVE BY NIGHT

(CONTINUED FROM PAGE 33)

his attention, the truck edges onto a shoulder, then off the road. It hits a ditch, careens crazily, skids and overturns. Before Cassie and Joe can get up with their fire extinguisher, the fuel tank explodes and a blinding flame envelops the entire truck as the three glare in helpless horror.

Brother Paul swears he's through with the road forever now, and he has to be left at a friend's home down the road while Joe and Cassie go into the city together. They put up at a hotel in another of those "It Happened One Night" scenes—Joe sleeping exhausted on the bed as Cassie snoozes in a chair.

Comes the dawn, and Joe is out in search of a haul. He runs into an old pal, Ed Carlson, who, thanks to the thoughtfulness of an old aunt who died and left him a tidy sum, is now the head of a big freight fleet. Just as it begins to look like our hero is in for a "break," complications ensue. Ed's wife, (Ida Lupino) falls hard for Joe.

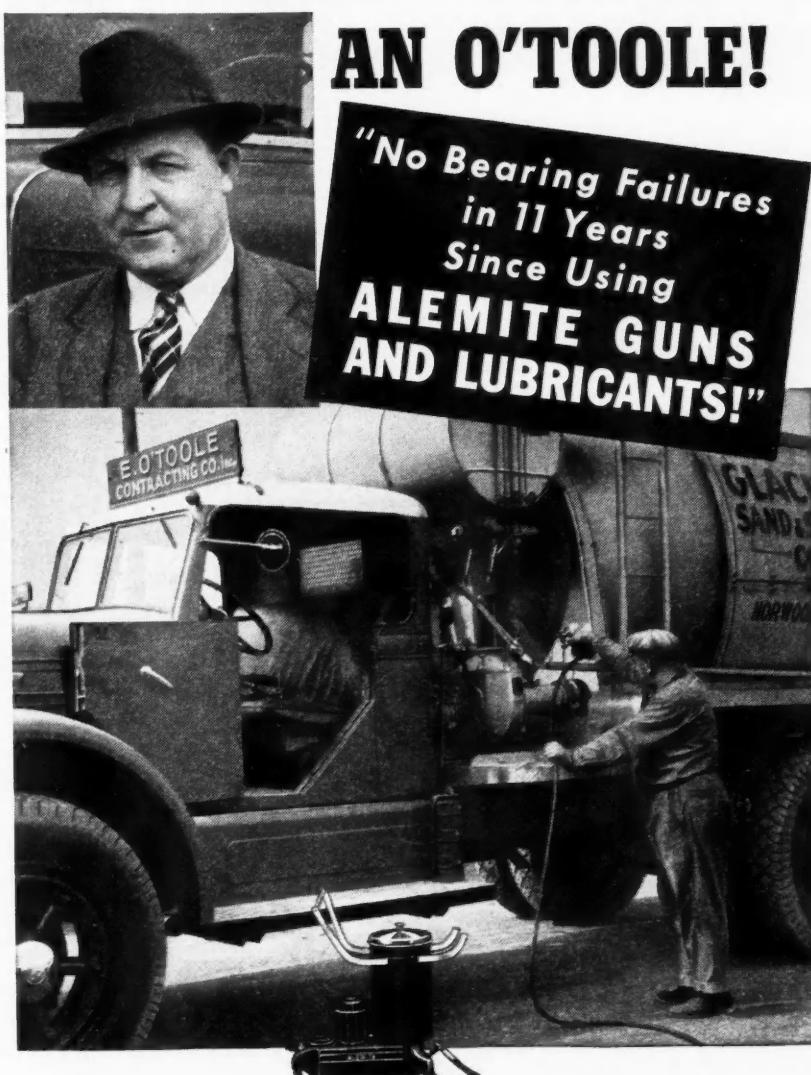
Ed has tipped him off where he can pick up several loads of lemons at a sale independently. Joe triples his money, gets title to his truck and has enough left over to swing the purchase of a trailer.

Everything is rolling swell now. He eludes the pursuing tactics of Ed's little woman and it begins to look like wedding bells for Joe and Cassie when Wham!—he's in the ditch again and in the accident loses his arm. But that seems to make no difference to Ida who haunts the hospital. He reminds her that she's a married woman and married to one of his best friends.

"So that's why he's avoiding me," she says. When her husband, sleepy from drink, drives her back from a party to the truck terminal where they garage their car, she leaves him in the garage with the motor running. "Death accidental," is the coroner's report, and Joe finds himself in partnership with the widow, heading a flourishing truck business. Until, that is, when Ida discovers the existence of Cassie in her Joe's background, whereupon she goes straight to the District Att'y and frames Joe.

(TURN TO PAGE 82, PLEASE)

IT'S HARD TO FOOL AN O'TOOLE!



Massachusetts Contractor Gives Credit for Big Savings on Maintenance and Depreciation

SAYS Edward O'Toole, president of Glacier Sand & Stone Co., Norwood, Mass., "We've had no bearing failures on this concrete mixer since Alemite Lubrication was put on the job, 11 years ago. This 25-lb. Alemite Electric Power Gun, with Alemite No. 33 Lubricant, does the work in less than half the time it formerly took—and it keeps the operator's hands away from drum and gears."

Says Edward O'Toole, speaking as head of the E. O'Toole Contracting Company, Inc., "When we're working on a big job, our equipment has to keep on delivering, day and night. Delays run into big

money fast. But with Alemite Lubrication we never have any delays due to lubrication trouble. Alemite is fast, dependable, safe. It saves me plenty!"

Contractors, generally, are extremely maintenance-conscious. You have to show 'em. Where an ordinary fleet owner loses dollars, contractors lose tens and hundreds of dollars if one piece of equipment bogs down through faulty lubrication. They can't afford to take chances. That's why so many big contractors use Alemite Equipment and Alemite Lubricants. Whether you operate one truck or a thousand, Alemite can save money for you! Write for our latest catalog!

ALEMITE

REG. U. S. PAT. OFF.

INDUSTRIAL LUBRICATION

ANOTHER STEWART-WARNER PRODUCT
1876 Diversey Parkway, Chicago, Illinois • Belleville, Ontario



Ask Anyone In Industry!

(CONTINUED FROM PAGE 80)
accusing him of having "made" her commit the crime.

Joe is arrested. But the drivers of the trucking organization, at a mass meeting, get him out of this jam. Things work out.

"They Drive by Night" features no gunplay. It's one of the first highway transport pictures ever to be shipped from Hollywood without benefit of firearms. Both in action and dialogue considerable emphasis

is laid on Safety and Highway Efficiency. New type refrigerator cars are mentioned and various types of trucks are exhibited in actual service—from truck and trailer combinations invoicing at nearly \$50,000 to a 1/2-ton "wheelbarrow." So it's hoped that the picture will be of some indirect aid to all system and independent truckers. By focusing attention of the movies' weekly millions on the constructive aspects of the game, there is at least a helpful tie-in with the advertising and promotional activities of the trade.

While it was in production, the studio had a visit from Messrs. Leslie Allman and Stuart Russel, who were in California partly in connection with the forthcoming Truck Rodeo, and stayed to watch some of their trailer equipment performing before the microphones and cameras. On the "set" these gentlemen delighted Ida Lupino (the truck corporation president's widow in the film) with a bejeweled pin, a miniature of a truck, denoting her as the 4,500,000th truck driver on the nation's highways. As possessor of the pin, they pointed out, other truck drivers are pledged to extend her aid in any emergency. Other similar affairs were pulled off.

The close of this epic really ended up in an orgy of mutual giftings. For George Raft handed Mack Gray, his boyhood friend and secretary of long standing, bill of sale to a smart new convertible coupe—had it standing at the stage door as a shiny surprise.

Ann Sheridan had been hunting up an unknown truck driver who, way back last January, had befriended her on the road. When her private car ran out of gas one night on a local turnpike, this fellow siphoned some out of his truck and refused payment. "Okay I'll do the same for you some day," the "oomph girl" promised. So when this picture came up, she asked the studio casting director to comb California trucking establishments and award a part in the filmpay to this unknown knight of the road—if he could be located. Nine different phonies turned up subsequently, each claiming to be the good Samaritan, but the real guy was never found.

The studio started out to look for a truck driver too. They wanted to snare the driver with the greatest number of safe driving hours to his credit and present him with an appropriate trophy. The hunt was still on at last reports.

Actual shooting of the picture went through with only one hitch. Delay was caused when Raft's big trailer ensemble hit the ditch and smashed its wheel. Bogart, his brother, couldn't lift the 300 lb. wheel to change it. Too heavy for the actor. So they had to call off work for the rest of that day while the studio woodworking shops turned

(TURN TO PAGE 84, PLEASE)

You Know You're SAFE When You See This Tag



Insist on Certified DO-RAY Lighting



No. 1292 Do-Ray Nobby Catapype Reflex Signal for trucks, 4 1/2" diameter. List price \$1.00



No. 1173 Flush Type Clearance Lamp, 4 1/2" dia. List price .55c



No. 1132R Flexfit 3-way light. One piece molded rubber body. Fits any surface. List price \$2.50



No. 1136 Do-Ray Swa-Bac Flexible All-Rubber Clearance Lamp, Angle Bracket. List price .50c

● Be sure you are getting SAFE lighting and reflecting devices. Look for this tag. It identifies Do-Ray fog lights, reflectors, stop lights, and other products. They're Certified for your safety.

Do-Ray devices are tested by recognized independent laboratories and pass S.A.E. and I.E.S. specifications. They are certified to meet all requirements of the Interstate Commerce Commission. You know they're safe for your heavy duty truck or bus service.

Only Do-Ray products are Certified for your safety.
Do-Ray Lamp Co., 1458 S. Michigan Ave., Chicago, U.S.A.

You Can Depend on
DO-RAY

**Tiger-Ey-
Nobby
and Reflecting Devices**
Ask Your Jobber

SAFETY LIGHTING

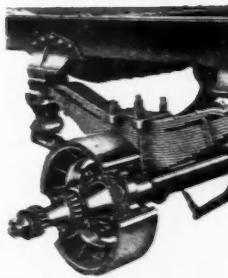
The KINGHAM
ZEPHYR
HITS A NEW HIGH
 in TRAILER
 Engineering!



NEW KINGHAM STREAMLINE
 SUPPORTS WITH COMPOUND
 GEARS



NEW KINGHAM RUBBER
 MOUNTED ALIGNMENT
 FEATURES



NEW KINGHAM
 SUSPENSION ASSEMBLY



NEW KINGHAM X-BRACED
 FRAME—LIGHT WEIGHT

The new light weight Kingham Zephyr was designed by Mr. C. H. Kingham, President of the Kingham Trailer Company, Incorporated, a nationally known trailer builder for over fifteen years.

The Kingham Zephyr embraces the qualities of good design, superior workmanship and dollar for dollar value. It is durable, dependable and serviceable.

The new light weight Kingham Zephyr makes the truckman's dreams a reality—increased payloads at lower operating cost.

See the Kingham dealer nearest you

NATIONAL SALES **Kingham** NATIONAL SERVICE
 UNIVERSAL

"A Load Behind Is a Trip Ahead"

KINGHAM TRAILER COMPANY
 INCORPORATED

LOUISVILLE, - - - - - KENTUCKY

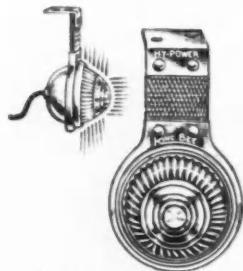
(CONTINUED FROM PAGE 82)

out an exact replica of the steel wheel in balsa accurately enough to fool trucking industry members in the audience. Balsa, you know, is the wood kids carve toy airplanes from. You can pick up a full size balsa truck wheel with your little finger.

They're not offering truck folks \$10 for every "boner" espied in this film though. Warner's claim it's as realistic as can be, what with all their own Transportation Dept. foremen

as impromptu "Technical Directors" and Art Klein, head of the automotive section, there on the job. Some "Research" was also done in local trucking circles. As additional reference matter, the set dressers consulted issues of *Life* and *Fortune* which recently carried pictorial "spreads" on the trucking business, and the day I was on the set I noticed the script-girl squatting beside the camera with a copy of *COMMERCIAL CAR JOURNAL* in her lap.

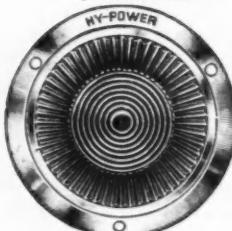
PRIVATE CARRIERS! MEET THE NEW I. C. C. LAWS EFFECTIVE AUGUST 1st WITH GENUINE KING BEE EQUIPMENT



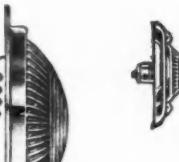
The famous Hy-Power "78".
Flexible Mounting. Practically Non-breakable.



The indestructible Foto-Ray Reflector.

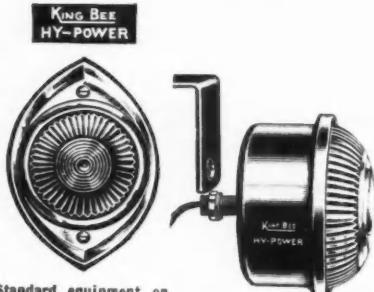


Surface Mounted Lamp, Flat Type.



Effective August 1st, Private Carriers must meet safety specifications similar to those now required of Common Carriers. King Bee Hy-Power Lamps, Protecto Mirrors, Foto-Ray Reflectors and other safety equipment fully meet these new I. C. C. Regulations. To comply with the law—to make your trucks *really* safe—and to be sure of equipment which, in most instances, lasts as long as the truck itself—

SPECIFY KING BEE!



Stop and Tail Lamp.



Streamline Lamp on soft cushion pad. Fits any contour of roof corner on cabs and trucks.



POSITIVE
LOCKING LIP
NO THREADS TO
GLUE WITH DENT

Lamps are available
with either 3 or 6
C.P. bulbs for 6-8 or
12-16 V. systems.



The only all metal Flexible Lamp made.

PROTECTO MIRROR

Special design rubber rim permits instant mirror glass replacement.



Heavy Duty Universal Mounting. Attaches direct to body or to any size hinge. Covered by U. S. Pats. 98,605, 116,053, 1,893,245, 2,111,641, and 2,180,610. Canadian Pat. No. 336533. Others Pend. Beware of spurious imitations.

ASK YOUR JOBBER OR WRITE FOR CATALOG

AMERICAN AUTOMATIC DEVICES CO.

Manufacturers of the Famous KING BEE Products

HARRISON, THROOP AND CONGRESS STREETS

CHICAGO, ILL.

A Letter on Welding

To the Editor:

That article you published recently (page 122, June 1940), by Mr. J. F. Lincoln, in which he described the simplicity of the arc welding process, has created considerable discussion. There is nothing I would like better than to see the sale of arc welding equipment double or triple year after year. I feel, however, that Mr. Lincoln has gone just a bit too far in minimizing the importance of trained operators.

True, there have been remarkable developments and improvements during recent years with respect to equipment, methods and materials involved in arc welding. The process has unquestionably been greatly simplified but I do not believe that anyone should be induced to adopt the process believing that it can be effectively and economically used by inexperienced or untrained personnel.

Contact with large users and with American Welding Society sections has given me the impression that there is more and more attention being paid to qualification of operators as well as of methods and materials. Welding schools all over the country are now crowded with men learning to weld.

It seems to me that it would be better for all concerned to admit that best results from arc welding call for its use by skilled operators who know something more about what they are doing and trying to accomplish than the mere mechanical manipulation of the welding arc. In the textbook used at our factory-operated, non-profit welding school we say:

"Anyone with average intelligence, a steady hand, and a real desire to perfect himself in the arc can readily learn to weld with the electric arc. To become an expert operator, however, requires something more than mere ability to manipulate the welding arc."

That statement, of course, is directly opposed to the one you quoted.

Continuing the quotation from our textbook: "The man who has had previous training and experience in some mechanical trade will develop more quickly into a proficient welding operator than the man without such training or experience. An experienced gas welder will find it extremely easy to become proficient with the arc due to his knowledge of metals, welding heats, etc."

In other words, while admitting the desirability of using trained operators, we point out that it is not difficult to develop them, if none are available to the employer planning to adopt arc welding. Even where procedure control is so far advanced that little is left to the discretion of the welding operator, I personally believe that better welding may be expected when the operator knows "what it is all about."

Sincerely yours,

W. J. Chaffee—Welder Division
THE HOBART BROTHERS
COMPANY

EXTRA STRENGTH—LIGHTER WEIGHT —because the body panels are “PRE-TENSED”

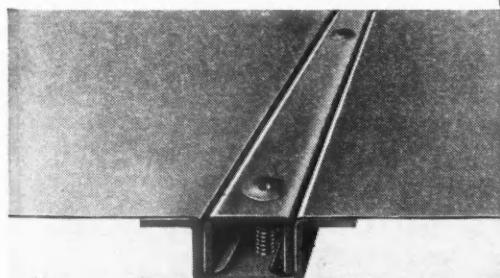


Lindsay Structure 22-ft. refrigerated frameless semi-trailer built by Trailer Service & Garage Co., Chicago.

PATENTED PRINCIPLE USES STEEL MORE EFFICIENTLY

Panel sheets in conventional type bodies are merely “hung on” the framework. The framing has to carry the entire load. If it is not unusually heavy, the structure “gives” and loosens. In Lindsay Structure bodies, the steel panel sheets act as braces—holding the frame members in a rigid “Pre-Tensed” grip. Thus, the steel in the panels as well as in the framing is used to resist road pounding.

Edges of Ls panel sheets locked in flanged frame by the “tensioner” and socket screws.



Are you looking for a truck body that can take lots of punishment—yet whose light weight will give you increased payloads? Bodies built of the new Lindsay Structure have just those features.

Truck operators who have tried the Ls body are amazed at the way it takes the curves. No swaying or twisting in this body. The tension in the panels holds the structure tight and rigid. And in case of an accident, you can merely take out a few screws and re-

place the damaged panel—from the outside! You don't have to touch the undamaged sections.

But what about cost? The mass production of Lindsay Structure parts in 4500 standard sizes enables you to order a custom-built body, within $1\frac{1}{2}$ inch of any desired size, that costs no more than conventional types. If you'd like to know more, write: Dry-Zero Corporation, 222 North Bank Drive, Chicago; or 60 East 42nd Street, New York.

There is an AUTHORIZED Ls BODY BUILDER in your locality

LINDSAY STRUCTURE



TRUCK BODIES

UTILIZES THE STRENGTH OF ALL THE STEEL

FREE BOOKS

(CONTINUED FROM PAGE 17)

esting new feature is the "individualized" uniform made possible by means of shoulder straps, trouser braids and cap cords. Check "F" on the post card for a free copy.

Gar Wood Hoists and Bodies

Condensed details of the various type Gar Wood hoists and dump bodies available for light trucks are described in a series of booklets just released. Bulletin No. 16 covers models for Ford trucks, No. 17, for Chevrolet and No. 7 for 1½ to 2 ton trucks of other makes. Check "G" on the post card and indicate which bulletin(s) you wish.

K-D Lamp Catalog

Just off the press is catalog No. 40 of The K-D Lamp Co., Cincinnati. Wood cuts illustrate the various models in exact detail. With each illustration is a concise but thorough description. This is a factual catalog, free from all ballyhoo. Check "H" on the post card.

Spray Equipment

The Eclipse Air Brush Co., Inc., Newark, N. J., has just issued Catalog No. 77, a 32-page, 8½x11 booklet covering its complete line of spray equipment for both

manual and automatic operation. Included in the catalog is a section devoted to the company's Pneumix air-motored agitators. Check "I" on the post card.

Welding and Soldering Equipment

A complete range of welding, cutting and soldering equipment is described in a new 28-page booklet just issued by The Imperial Brass Mfg. Co., Chicago. Shown for the first time is a new, economical Imperial 7X welding torch especially recommended for sheet metal, and auto body and fender welding. Check "J" on the post card.

Tank Trailer Details

A broadside folder by the Fruehauf Trailer Co. containing data on tank-trailers is distinguished by an outstanding diagram showing the structure in color of a modern tank-trailer. Every individual part is numbered and described and the entire tank and trailer chassis construction is cut away so that a graphic picture of the interior construction is presented. Check "K" on the post card for your copy.

FWD Road Maintainer

"The busiest Maintainer on earth" is the claim made by the Four Wheel Drive Auto Co. for its Model HG road maintainer that grades, plows or just plain hauls a conventional load. Full details are well handled in a new booklet just off the press. Check "L" on the post card for your copy.

QUIZ ANSWERS

(See Page 18)

- c. Chrysler, born April 2, 1875.
- b. Sloan, born May 23, 1875.
- a. Hoffman, born April 26, 1891.
- a. Water, 1.00.
- e. Alcohol, .80.
- b. Gasoline, .75.
- b. Pennsylvania, 28,785 miles.
- c. Texas, 14,977 miles.
- a. New York, 12,516 miles.
- a. White model 722, 8-10 ton.
- c. GMC model AC700, 3½-7 ton.
- b. Brockway model 125X, 3 ton.
- c. Pneumatic tire, 1845.
- b. Oil well, 1859.
- a. Four-cycle, 1862.
- a. United States, 1,213,200 barrels (1938).
- c. Russia, 202,300 barrels.
- b. Romania, 48,400 barrels.
- c. Oil, approx. 100 lb.
- b. Tire, approx. 64 lb.
- a. Battery, approx. 42 lb.
- b. New York, 1,684,672 gal.
- a. California, 1,571,925 gal.
- c. Pennsylvania, 1,397,068 gal.
- a. 39.6 per cent of total.
- c. 13.4 per cent.
- b. 12.9 per cent.
- a. Gasoline, 11,250 calories per gram.
- c. Kerosene, 11,100 calories.
- b. Benzene, 9,977 calories.

And they don't mean "Maybe"

**EXTRA-LARGE
STOP LIGHTS**

Command Attention
Prevent Accidents

These lights are **EFFECTIVE** . . .
they issue their command in no
uncertain terms and are one of
the most important safety aids
that can be installed.

MODEL No. 253
5-INCH LENS

The word "STOP" gleams through the
red or amber lens in huge letters . . .
so big that drivers back of you can
have no alibi. Flasher can be used, if
desired.

for
Commercial Vehicles
School Buses
Invalid Cars
Station Wagons, etc.

MODEL No. 254
7-INCH LENS

GET NEW CATALOG No. 40

Members by invitation . . . Rice Leaders of the World Assn.

The K-D LAMP Co.
CINCINNATI, OHIO

Wait For . . .

THE New TRAILMOBILE

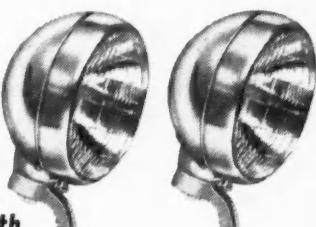
Sterling

MOTOR TRUCKS ARE BUILT TO ENDURE
GASOLINE and DIESEL
POWERED
Capacities 18,000 Pounds Gross and up

STERLING MOTORS CORPORATION
MILWAUKEE, WIS.

3 TIMES MORE LIGHT

with



GLASEAL

ARROW SEALED BEAM, "ALL GLASS" DRIVING AND PASSING LIGHTS

Put ARROW SEALED BEAM AUXILIARY LAMPS on your fleet. These ARROW Driving and Passing Lights contain the new hermetically sealed, "all-glass" *Mazda* lighting units. There's never any loss in light from tarnish. Moisture, dust and dirt positively cannot sift in. The rugged glass reflectors, molded with micro-precision, have the same efficient mirror surface used on large telescopes.

ARROW SEALED BEAM LIGHTS work automatically with present headlamps . . . The Driving Lamp is lighted when the high (country) beam of regular headlamps is switched on . . . When the foot switch is used to dim to the lower (traffic) beam, the Driving Lamp is automatically turned off and the Passing Lamp comes on. For ordinary city driving both auxiliary units may be cut out by means of a dash-switch. ARROW SEALED BEAM LIGHTS help your drivers see farther, better, quicker. They mean safer night driving. Write for catalog. Box 39.

Headlights can be changed to Sealed Beam
Lighting with ARROW Conversion Kits.

ARROW SAFETY DEVICE CO.
MEDFORD

NEW JERSEY

"KING" Testers Reduce COST of REPAIRS



The "KING"
K-400-\$198.00

You can operate your fleet more efficiently by using "KING" Testers because they enable you to keep your cars and trucks at maximum performance. They enable you to locate trouble quickly and accurately, which is always the first important step. The "KING" Exhaust Gas Analyzer is a very important unit because it will detect a waste of gas and will enable you to get MORE MILES PER GALLON. The "KING" K-400 Unit Tester has the following five units which may be purchased separately: (1) Motor and Ignition Tester; (2) Generator Voltage Regulator Tester; (3) All Electric Spark Plug Tester; (4) New oscillator type Condenser Tester; (5) Exhaust Gas Analyzer with vacuum and fuel pump test.

"KING" ELECTRO-TACH for \$42.50

The new "KING" Electro-Tach R-49 (or R.P.M. Indicator) simplifies timing of the ignition, carburetor adjusting, testing engine balance and also has many other uses. All meter wavering has been overcome by taking the more rapid impulses from the primary of coil or distributor instead of the spark plugs. It requires no balancing or disconnecting of wires. It will operate from a 6-volt battery.

Ask Your Jobber or Write Us Jobber's Name

The ELECTRIC HEAT CONTROL CO.
9127 INMAN AVE., CLEVELAND, OHIO
KING - Good Products Since 1914 - KING



... to lower
operating costs

Turn to Veeder-Root Hub Odometers for truly accurate mileage records that show you all possible chances to save on gas, oil, tires, repairs, trip-routing. These dirt-proof instruments record every mile each truck travels, backward and forward . . . can be geared at the factory for all sizes of wheels and tires. Nationally sold and serviced. See how they are saving for other fleet operators. WRITE FOR FREE BULLETIN.

Veeder-Root Inc., Hartford, Conn.

Veeder-ROOT HUB ODOMETERS

5-MAN BROCKWAY TRUCKS-EQUIPPED WITH ANTHONY Hydraulic HOISTS



For Tough Mountain Work—

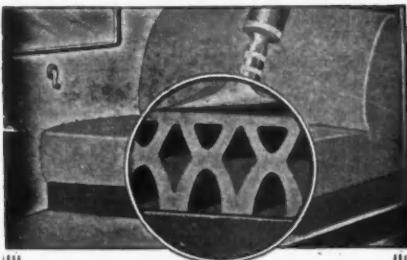
ANOTHER example of how Anthony Low Loading Height Hydraulic Hoists are doing all kinds of tough jobs throughout the country. The City of Los Angeles Bureau of Water and Power bought special 5-man cab Brockway Trucks, Model No. 165-X, equipped with Anthony No. 722 Hydraulic Hoists, to work between Los Angeles and Boulder Dam.

The jobs were sold by the Brockway Pacific Truck Co. through Lambert Co. Ltd., Los Angeles, distributors. Mfg. by



**ANTHONY
COMPANY**
Streator, Illinois

**SLASH MAINTENANCE COST
with Black Diamond All-Rubber
SEAT CUSHIONS**



Truck operators who now use Black Diamond all-rubber seat cushions and back rests exclusively do not hesitate to say that they give longer wear, with no upkeep expense, than any other seat cushion they have ever known. There can be no question about their economy as exclusive diamond grid construction and quality materials assure the best at less cost. Cool and luxuriously comfortable. Will fit any size truck. Write today for details.

KARPEX MANUFACTURING CO.
1424 E. 19th St. Indianapolis, Ind.

WHY CHANGE OIL?

WHEN "OIL DOES NOT WEAR OUT"

U. S. BUREAU OF STANDARDS

Car, Truck, Tractor Owners—Stop wasting your money on needless oil changes! Keep oil clean and "oily" indefinitely. Our FREE booklet "Oil Facts" a revelation. Ask your dealer for a copy, or write to—
RECLAIMO MFG. COMPANY
2306 N. WESTERN AVE., DEPT. 20, CHICAGO, ILL.

**AMERICAN SAFETY TANKS
DO
PREVENT TRUCK FIRES**

Ask the Men Who Use Them!

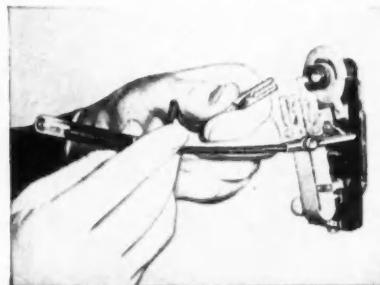
American Safety Tank Co.
Underwriters Laboratories, Inc., AU1302
KANSAS CITY, MISSOURI, U.S.A.

NEW PRODUCTS

(CONTINUED FROM PAGE 38)

Low-Voltage Tattelite

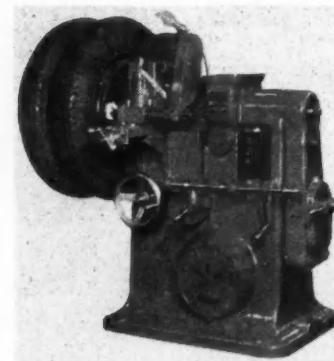
A new low-voltage pocket circuit tester, covering the range from 3 to 25 volts and momentarily up to 50 volts, A.C. or D.C., is being offered by Littelfuse, Inc., 4757 Ravenswood Ave., Chicago. Using a high



temperature coefficient lamp to cover the relatively wide voltage range, the unit, known as the Tattelite, is housed in a transparent tenite case and is equipped with tinsel wire leads and alligator clips.

New Units in Lempco Line

Lempco Products, Inc., Bedford, Ohio, now offers the cleaning and cooling advantages of wet grinding in three different sizes of brake drum machines. The Du-All is an all-purpose machine, which,



besides turning and wet grinding brake drums, also turns and grinds flywheels, con rods, pistons and many other shop operations. The lower priced Models C and G units turn and wet grind brake drums and may also be set up for wet grinding clutch pressure plates.

OXYLATOR

**CUTS MAINTENANCE
COST
CUTS FUEL COST**

"The mechanical solution
for crankcase dilution."
For detailed information and
particulars, write—

Oxylator Co.
Grand Rapids, Michigan

Specify . . .

XACTO Printing Pump
To Check Fuel Deliveries
at the Pump

AKRAFLO Fuel Consumption
METER to Check
Fuel Consumption at the Motor

S. F. BOWSER & CO., INC.
1360 Creighton Ave.
FORT WAYNE, INDIANA



**ELIMINATE
RUN-DOWN
BATTERIES**

... for low-cost battery mileage. Now, it is simple and inexpensive to keep batteries at efficient charge to prolong battery life. The Valley G-12 charges 1 to 12 6-volt batteries. Model G-12 charges 1 to 12 6-volt batteries. NOW ONLY \$25.00
Other sizes at equally low prices.

Valley Electric Corp.
4281 Forest Park Blvd. • St. Louis, Mo.

For PROVED PERFORMANCE in

**TRUCK
REFRIGERATION**

install **BAKER** equipment

BAKER ICE MACHINE
COMPANY, INC.

1575 Evans St. Omaha, Nebr.

KINNEAR TRUCK DOORS

Also Doors for Buildings

ALL METAL

... Coils like a
window shade, out
of the way

**CONVENIENT
BURGLAR PROOF
FIRE PROOF
MORE DURABLE**

Write for Details

The KINNEAR

Manufacturing Co.

2100-20 FIELDS AVE.

COLUMBUS, OHIO

Factories: San Francisco, Cal., and Columbus, Ohio



Alabama Highway Express of Birmingham recently added nine new semi-trailers to its fleet. All were built by Kingham Trailer Co., Louisville, using modern Lindsay Structure Bodies.

When writing to advertisers please mention Commercial Car Journal

COMMERCIAL CAR JOURNAL
JULY, 1940

... Take the DRUDGERY
OUT OF TRUCK
DRIVING
with
**SYNCRO-
SEAT**



It's the Seat That Takes the Beating—Not the Driver

Syncro-Seat eliminates "kidney punch," shirt-tail rub and sore backs—because the back rest moves up and down as a unit with the spring-suspended seat.

There is no longer the story of lost time by drivers because of doctor's orders to "stop driving for a while." The loss of a week's wages would more than pay for a Syncro-Seat.

Fleet owners who know the action of the old style truck seat recommend the new Syncro-Seat as the solution to driver problems. Syncro-Seat can be easily installed at low cost.

For circular describing the Syncro-Seat, and list of distributors and dealers, write to

MOTOR STATE PRODUCTS CO.
2-257 General Motors Building, Detroit, Michigan

SEE HIGHWAY TRAILER COMPANY'S
FREIGHTMASTER '40'
SEMI-TRAILER VANS OF ALL TYPES
FOR
NEW LIGHT WEIGHT AND LOW PRICE
COMPLETELY MANUFACTURED UNITS
AT
YOUR NEAREST HIGHWAY DEALER OR WRITE
FOR COMPLETE INFORMATION
HIGHWAY TRAILER CO. Edgerton, Wis.

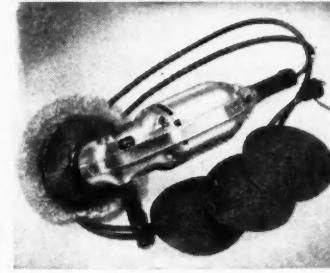
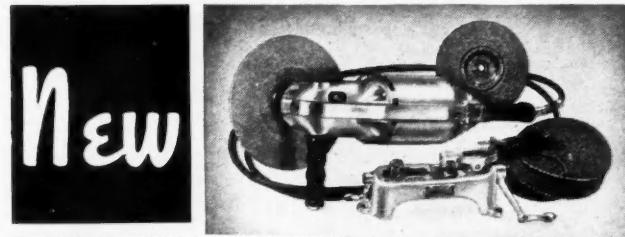
New Location
COMMERCIAL CAR JOURNAL'S
New York Office
100 East 42nd Street
after July 1st, 1940
Telephone: Murray Hill 5-8600
CHILTON COMPANY (Inc.)
Chestnut and 56th Sts., Philadelphia, Pa.
100 East 42nd St., New York, N. Y.

FOR LOW COST MAINTENANCE



Whatever your requirements, if your problem is to transmit power at an angle, our field and factory experience of more than 30 years is at your command. Our Engineering Department will gladly submit quotations covering your requirements.

**BLOOD BROTHERS
MACHINE COMPANY**
DIVISION OF STANDARD STEEL SPRING COMPANY
ALLEGAN • • MICHIGAN



**DISC - SAVING
SANDING OUTFIT**

Faster sanding, smoother surfaces and much lower operating costs are yours with this new Snap-on outfit, because it gives you (1) Power for the toughest, longest heavy-duty jobs (2) Two motor speeds for sanding control and disc economy (One 9" disc can be used it as it wears and shifting sander from low to high speed as disc is cut down). (3) Snap-on's abrasive Disc Trimmer for cutting new edges as discs wear smooth . . . giving each disc the sanding capacity of many separate discs at a fraction of the cost. Full information on this new outfit and 2200 other Snap-on tools sent on request—or see your Snap-on salesman.

**SNAP-ON TOOLS
CORPORATION**

Dept. CCJ-7
Kenosha, Wisconsin



**Snap-on
SERVICE TOOLS**

The Choice of Better Mechanics

REDUCE
TON-MILE COSTS
ON SEVERE
SCHEDULES WITH
PRECISION-
MANUFACTURED

AUTOCAR TRUCKS

ARDMORE, PA., AND LEADING CITIES

FLY-BALL GOVERNORS FOR ALL MAKES AND MODELS OF VEHICLES

The Pierce Governor Company
ANDERSON, INDIANA, U. S. A.

The largest
fleets
specify
↓

CONNECTICUT DIRECTIONAL SAFETY SIGNALS

Available Trucks

Builders of the Motor Trucks,
Tractors, Trailers and Buses
since 1910.

Capacities from 1½ to 10 tons.
Write for bulletin

AVAILABLE TRUCK COMPANY
2501 Elston Ave. Chicago, Illinois

PAT. PEND.
Ask your
dealer or write
to us for literature

Unconditionally
GUARANTEED!

THE ONLY *burn-out* PROOF DIRECTIONAL SIGNAL SWITCH

SOLVED!... your signal switch troubles. Install as a replacement for any make of directional signals or with a complete set of Signal-Stats. Ask your jobber for further information or write

SIGNAL-STAT CORPORATION
59-79 PEARL STREET BROOKLYN, N. Y.

NEW PRODUCTS

(CONTINUED FROM PAGE 100)

Whirlwind Wire Wheel Brushes

A new group of high quality wire wheel brushes, available in sizes, thicknesses and wire gauges to suit practically any wire brushing operation, is now available from the Van Dorn Electric Tool Co., Towson, Md. Furnished in six diameters, three thickness sizes and in two types of wire,



the wheel brushes are designed specially for Van Dorn equipment. However, those having from 6 in. to 12 in. diameters are made with standard size hole to which a set of bushings are adapted, permitting them to be used with almost any size arbor or spindle.

Accurate Pilot Tool

A low-cost, precision-built pilot tool, furnished complete with adaptors for all standard clutches, is offered by the Accurate Parts Mfg. Co., 608 National Building, Cleveland, Ohio. Invaluable to all



shops where clutch rebuilding is done, the Pilot holds clutch plate in alignment with the pilot bearing while assembly is being bolted to flywheel. Packed in handy, wooden service box, ready for instant use.

SPEED CONTROL Without Loss of Power

NORMAL MOTOR PERFORMANCE IN ALL SPEEDS UP TO SET SPEED LIMIT
FULL POWER IN ANY GEAR FOR HILLS—
HEAVY PULLS—QUICK ACCELERATION
NOW AVAILABLE IN TWO PRACTICAL
TYPES TO FIT ALL REQUIREMENTS
Both types electrically operated in conjunction
with ignition system

- 1—SAFETY SPEED MOTOR CONTROL—Limits RPM of engine without loss of power—Designed for use on LARGE TRUCKS and STATIONARY ENGINES.
- 2—SAFETY SPEED VEHICLE CONTROL—Limits speed of vehicle without loss of power—Designed for use on TAXICABS and LIGHT DELIVERY TRUCKS. For full particulars write

SAFETY SPEED CONTROL COMPANY
4242 W. Chicago Ave. — CHICAGO, ILL.

HERE'S A WAY TO CUT YOUR HAULAGE COSTS



SAVE WEIGHT with REPUBLIC DOUBLE STRENGTH STEEL

REPUBLIC STEEL CORPORATION
General Offices — Cleveland, Ohio

THE NUT that is
reducing maintenance
costs for many of the
best managed truck
and bus fleets . . .



• Write for Catalog

ELASTIC STOP NUT CORPORATION
2332A VAUXHALL ROAD • UNION, NEW JERSEY

Elastic Stop SELF-LOCKING
NUTS

One of the most complete
lines in the business—each
tire built to give you
more miles for less money.
THE GENERAL TIRE & RUBBER CO.

AKRON, OHIO

In Canada—The General Tire & Rubber
Co. of Canada, Limited, Toronto, Ontario

GENERAL TRUCK TIRES



Degreaser

Concentrated!

Beware of Partly Diluted Imitations

Some stores may use the name of Gunk loosely to identify Inferior Products — Don't Be Fooled — If the degreaser does not bear the Gunk nameplate, it is not Gunk and should be flatly refused. Free Carburetor Cold Tank Formula to Gunk Users On Request.

A. F. CURRAN, MALDEN, MASS.



GENERAL OIL FILTER

Announces a Sensational CARTRIDGE

- Filters Faster
- More Efficient
- Less Expensive

Write for details and Special Fleet Prices

GENERAL FILTERS, Inc. 9001 Apache Detroit

DEVILBISS

Spray-Painting Equipment—Spray Booths—Canopy Exhaust Systems—Exhaust Fans—Air Compressors—Hose and Hose Connections—

Oil Guns.

Write for catalog

THE DEVILBISS COMPANY
TOLEDO, OHIO

Distributors or direct sales and service representatives available everywhere.

Croft Bearing Washer

Fast and economical washing of large bearings up to 12 in. in diameter used in bus and truck service is claimed for the Croft bearing washer offered by the Ahlberg Bearing Co., 4702 So. Whipple St., Chicago, Ill. In operation, the container is filled half full of cleaning fluid; the bearing is placed on the cone and the gun is employed to force cleaning liquid all through the bearing.

Synthetic Hose on Fyr-Fyter

A special type of Resistoflex PVA hose has been standardized for use on approved type Fyr-Fyter extinguishers, product of the Fyr-Fyters Co., Dayton, Ohio, according to an announcement from the Resistoflex Corp., Belleville, N. J. The hose, of flexible synthetic resin, is said to be inert



to hydrocarbons, and does not harden or crack due to aging or other service conditions. It is claimed to withstand cold in excess of -50 deg. F., and to stand up under flexing almost indefinitely. It is reinforced by a single fabric braid and supplied with an outer covering of synthetic rubber.

(MORE NEW PRODUCTS ON PAGE 107)

MORE PAYLOAD



MILES of SMILES



FOR —
AUTOMOBILES
TRUCKS
TRAILERS
AND
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4 Wheel Drive Trucks

A proven product. 1½ to 10 ton capacity. Write for complete information.

OSHKOSH

Motor Trucks, Inc.

Oshkosh, Wis.

Combine Hearings, July 15

Interstate Commerce Commission hearings on the applications of Transport Co., New York, for its huge eastern trucking combine (see page 40) will begin July 15 at the Commission's headquarters in Washington, D. C. J. Edward Davey, chief of the Commission's section of finance will conduct the hearings.

Two subsidiary companies not mentioned on page 40, Barnwell Warehouse & Brokerage Co. and Wright Line, swell the total of firms involved to 48.

CUT THE COST OF BATTERY MAINTENANCE

Equip all trucks or busses with DOUBLE LIFE
Kathanodes... the original Spun Glass battery.

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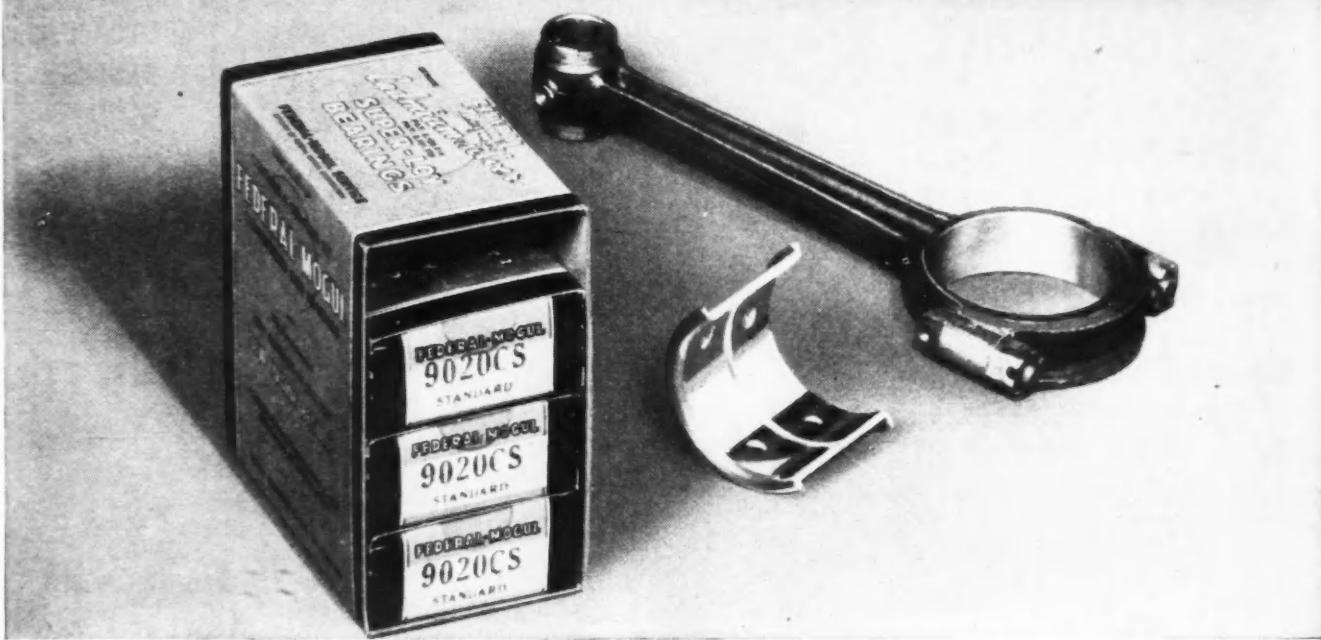


For the really
tough engine
overhaul jobs

For extra
mileage in
hard service

Where you have
a crankshaft
problem to lick

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SUPER-LOY BEARINGS



Where crankshaft hardness, engine operating temperatures, speeds and other factors, demand a bearing of exceptional quality, Super-Loy is the answer.

Super-Loy is designed especially for hard bearing jobs and will give satisfactory service under the most severe operating conditions.

For those "tough" oil pumpers and reconditioning jobs, where maximum life and mileage are essen-

tial, replace in sets with Federal-Mogul Cadmium-Silver Super-Loy bearings!

DON'T GUESS at the cause of OIL PUMPING!

Worn cam, con rod and main bearings are a major cause of motor-fouling oil pumping. Always check the bearings on an oil pumper, and when worn, replace in sets with Federal-Mogul Oil-Control Bearings for best results.

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One of the oldest and best known independent truck manufacturers in the United States needs immediately a man who thoroughly knows the truck business and is equipped through ability and experience to take over the duties of a Regional Manager in an important territory.

If you are interested, please give complete details of your experience in your first letter. Preference will be given to a man with successful experience in closing open territory for an independent manufacturer. All correspondence will be held in strict confidence. Adequate salary and traveling expenses to start. This post holds great future opportunities for the right man.

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Commercial Car Journal
Chestnut and 56th Streets
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Both "V" TYPE and
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hand or power hydraulic control
FOR ALL MOTOR TRUCKS
FROM 1½ to 10 TONS

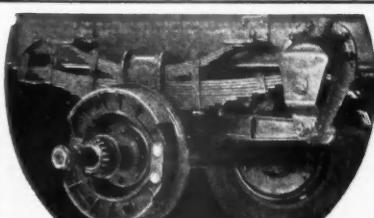
Note for catalog 38AC and 38BC with discount to truck dealers.
CARL H. FRINK, Mfr., CLAYTON, 1000 1st., N. Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
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For running-in-new and rebuilt engines use auxiliary lubricants containing "dag"** Brand colloidal graphite.

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"Ask the man who pulls one"
P Series Timken Power Brakes
Now Standard
GRAMM TRAILER DIVISION, Delphos, O

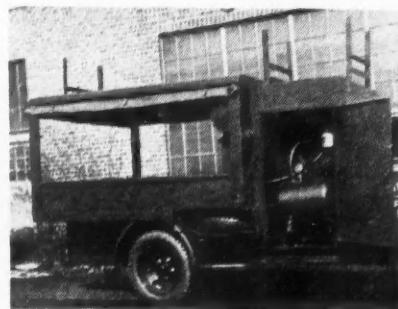
COMMERCIAL CAR JOURNAL
JULY, 1940

NEW PRODUCTS

(CONTINUED FROM PAGE 103)

DeLuxe Cremobile

A new deluxe model Cremobile has been designed by Hercules Steel Products Co., Galion, Ohio. Like previous models the unit is arranged to carry a Gunite cement gun together with all equipment necessary for the function of this portable pneumatic tool. New features include an

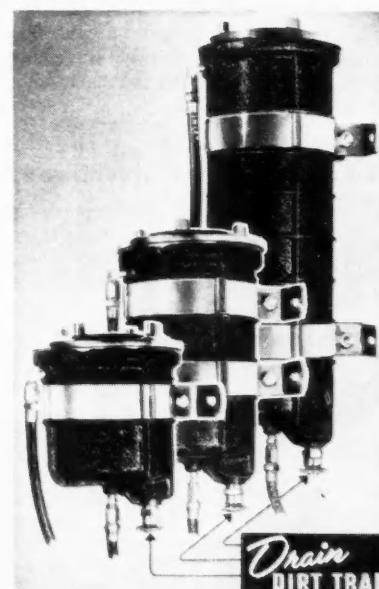


adjustable height steel roof enabling workmen to stand upright, enclosed air compressor compartment, and gun well cover for converting the unit into utility truck when not carrying cement gun.

Air compressors of 105 and 160 cu. ft. capacity are available and are operated from Hercules split-shaft power take-off. Complete literature is available from the manufacturer.

Oil Cleaner is Self-Flushing

A new line of Car-Life oil cleaners with a self-flushing feature said to double the effective cartridge life has been placed on the market by Oil Purifier, Inc., 3450 Broadway, Oakland, Calif. When the motor is stopped, the replaceable cartridge expands, shedding carbon and dirt into a



dirt trap, which is easily flushed out by opening a valve while the motor is running. Under adverse operating conditions the cleaner is said to keep the oil pure up to 15,000 miles and up to 25,000 miles under normal conditions. Six sizes are available.

**NEW, Improved
BALDOR GRINDER!
at a LOWER PRICE.**

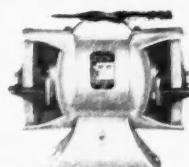
It won't BURN OUT

Sturdy-built for Auto Repair Service. $\frac{1}{4}$ HP., ball-bearing motor. 2-YR. GUARANTEE against burn-out. NEW LOW PRICE

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CAMPBELL LUG-REINFORCED TIRE CHAINS

- ★ Greater Mileage
- ★ Greater Safety

Write for special fleet discounts
International Chain & Mfg. Co.
YORK, PA.

The Mobile REFRIGERATION UNIT

The unit offering . . .
Economy
Compactness
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. . . in the most efficient type refrigeration on the market.

Write today for catalog.

MOBILE REFRIGERATION, INC.
10 Rockefeller Plaza, New York City

For information on

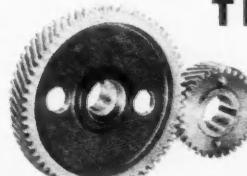
SHULER AXLES

see advertisement in the

August issue

CLOYES

For That SPLIT-SECOND
TIMING!



Give your truck engine hair-trigger accuracy of timing that the manufacturer intended it to have by installing CLOYES TIMING GEARS.

CLOYES . . . the gears DESIGNED to FIT.

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For Toughest Jobs EVERYWHERE

• Traction on all four or all six wheels enables these trucks to go places and do things no "ordinary" truck would attempt. Prices much less than you would expect. Ask for literature.

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HAIRFLEX
Upholstering material
for truck seats
and backs.

Springy
curled hairs
and vigorous
latex rubber.

ARMOUR AND COMPANY
CURLED HAIR DIVISION
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HOLLAND
CAN "TAKE IT"

The smartest, most improved unit of its type. Model V-400 Vertical Lift Landing Gear is especially adapted for heavy duty service.

Powerful—rugged—dependable.

Complete truck and trailer equipment. Catalog on request.

HOLLAND HITCH CO.
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Chevrons for National

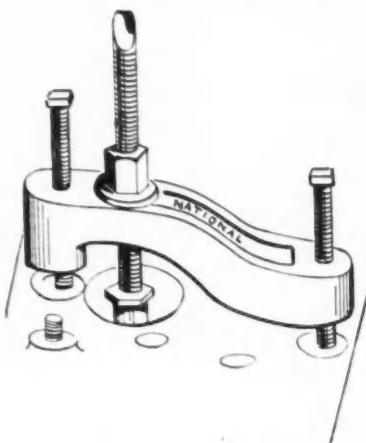
National Battery Co. has announced a new series of battery identification seals in the form of chevrons which enable users to quickly identify the low price, "standard equipment" and oversize types. One, two and three bars are used.



With 5 totally different truck and bus brake lining types, shown here as G, K, R, N, & Q Grey-Rock claims the answer to every brake problem. Where braking conditions are abnormal, U. S. Asbestos Division, Manheim, Pa., offers the use of its field engineering staff

New Ford Head Puller

A new puller for removing aluminum cylinder heads from Ford V-8, 85 hp. motors has been added to the line of the National Machine Tool Co., Jackson, Mich. A feature of the tool is a holding fixture which secures a grip inside the head and



thus cannot injure the spark plug threads. The tool consists of two complete puller units (only one illustrated) which bridge the cylinder head and rest on the head studs. By turning alternately on the four adjusting end screws and two thrust nuts, pressure is applied at six points and the head is quickly removed.

Self-Tapping Screw Assortment

No. 974 self-tapping auto-body screws in handy compartment packages is the latest assortment to come from Champ-Items, Inc., St. Louis, Mo. These hardened self-

**KEEP YOUR
VEHICLES MOVING
ECONOMICALLY**
with
HALL **VALVE SERVICING
EQUIPMENT**

Ask Your Jobber or write
THE HALL MFG. CO.
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The **GAS MASTER** for Safe and Sane Supply

GAS MASTER, a four-inlet one outlet control valve for trucks with multiple supply tanks, insures "finger tip" safety and economy. Eliminates "hill stalling" . . . reduces fire hazards. Built entirely of brass, it mounts on dash panel. Easy to operate . . . simple to install.



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HIGHWAY EQUIPMENT, INC.
Oak and Harrison Sts., Michigan City, Ind.

FOR 1940

MORE WORK IN LESS TIME AT LOWER COST

42 body and chassis types.

6 Wheelbases—158 and 134 in. Regulars—158, 134 and 101 in. Cab-Over-Engine units—122 in. One Tonners and $\frac{3}{4}$ Tonners—112 in. Commercial Cars—194 in. Schoolbus Chassis.

3 V-8 engines—95, 85, and 60 horsepower.

FORD V-8 TRUCKS AND COMMERCIAL CARS

tapping screws are said to cut their own threads through metal or other substances when original thread is stripped or screw is lost. Ranging in length from $\frac{3}{8}$ in. to $1\frac{1}{2}$ in. and furnished with either counter sink or binding type heads, the screws will handle any size from $3/32$ in. to $1/4$ in. dia. They are packed 250 to an assortment and list at 2c. per screw.

Less Weight . . .

THE New TRAILMOBILE

COMMERCIAL CAR JOURNAL

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BEAURLINE
FOUNTAIN
BRUSHES
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FASTER washing ability—longer-wearing brushes—washing, rinsing and polishing in one operation—are features that make the BEAURLINE Fountain Brush preferred by leading fleet owners everywhere. Save time, materials, money—do a better cleaning job, faster. Use "BEAURLINE".

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JONES PORTABLE TACHOMETER

The world's largest operators of commercial vehicles use Jones Portable Tachometers to check engine speeds for tune-ups, and setting governors etc. Here are a few: Standard Oil Co., of La., N. J., N. Y., Shell Petroleum Co., Atlantic Refining Company, Tidewater Oil Company, Keeshin Motor Express Mack Trucks, Brockway, U. S. Navy. Direct, instantaneous reading

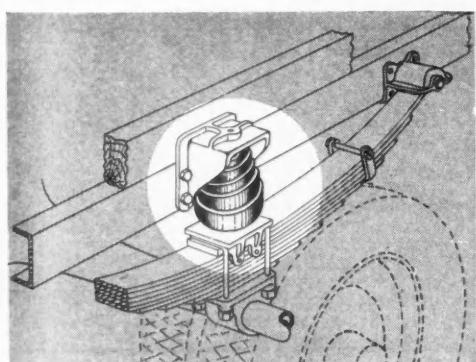
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HEAVY DUTY FOR OFF THE HIGHWAY SERVICE

—Specially Designed for—
Coal Mining—Iron Ore Mining—Copper Mining—Pit and Quarry—Logging—Oil Fields—Etc.
It Costs No More for Trucks Specially Built to Fit Your Needs. Have Our Engineers Visit and Analyze Your Operation.

DART TRUCK COMPANY
KANSAS CITY, MO.



New Quinplex Cap

A new model of the Quinplex Gas Tank Seal featuring a new die-cast construction has been introduced by the Quinplex Corp., 1505 Law & Finance Building, Pittsburgh, Pa. Like the earlier model, the cap features a double valve designed to eliminate vapor losses. A hair spring valve permits an inflow of air proportionate to gas withdrawn while a second valve prohibits the escape of air until pressure in the tank reaches a predetermined point—usually just under 3 lb. per sq. in.

Expands Refrigerating Line

The Frigidaire commercial and air conditioning division of General Motors Sales Corp. announced recently the addition of a small condensing unit for refrigerated trucks to its line of mobile refrigeration equipment. There are now four models of this type unit available in sizes from $\frac{1}{2}$ to $1\frac{1}{2}$ hp. inclusive.

Mounted on a base of welded channel and angle iron sections, the condensing unit is equipped with a two-cylinder, slow-speed reciprocating type compressor, and uses a dual voltage, capacitor start, sleeve bearing motor.

Colonial Metaljoiner

"Colaweld Metaljoiner," a new substance which is said to make the joining of aluminum and aluminum alloys and other metals an easy operation by the simple application of heat, has been introduced by the Colonial Alloys Co., East Somerset St. and Trenton Ave., Philadelphia. "Metaljoiner" is said to be positive in action, does not create electrolytic action, and requires only low heat (650 deg.) to properly fuse the metals.

G.M. Diesel Replacement Sales

Increased demand for diesel engine replacements for truck and bus service has led to the creation of a Truck Engine Replacement sales division with Phillip W. Sloan as manager. The new unit becomes a part of the Diesel Engine Division, General Motors Sales Corp.

New Plant for Hansen

A. L. Hansen Mfg. Co., 5047 Ravenswood Ave., Chicago, is making more room for production equipment, as well as storage and stock space, by adding 40 per cent more space to the present plant. Faster, more efficient production machinery as well as an improved system of conveyors for handling stock is included in the new three-story extension to the present plant along Winnemac Ave.

HOOF GOVERNORS

Low Maintenance — Tamper Proof — Full Engine Power



Hoof Products Company
Dept. BEC, 6543 S. Laramie St. Chicago

AUSTIN

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WAUKESHA

Multi-Fuel ENGINES

DIESEL OIL GASOLINE BUTANE

ALL LIQUID OR GASEOUS FUELS

NOC-OUT

TRADE MARK
HOSE CLAMPS
THE HOSE CLAMP WITH THE THUMB SCREW



WITTEK MFG. CO.
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Extra Payload without Penalty!

With its unique cushioning action **BODY BUOY** floats the extra load without additional strain on the center bolts or U bolts of the main spring. There's no burdensome extra weight—pair of springs weigh less than 20 lbs.—yet capacity is greater than ordinary helpers. Proven by thousands of vehicle owners. Installed with a few simple tools. Your Dealer has or can quickly secure Body Buoy for virtually any vehicle.

Write for Literature—stating make, year, body and capacity of job.



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BODY BUOY

The Auxiliary Spring that floats the load

BORDICK STEEL PRODUCTS, INC.

COMMERCIAL DIVISION
537 ORLEANS DETROIT, MICH.

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